

**COMMONWEALTH OF VIRGINIA**  
**Department of Environmental Quality**  
**Valley Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**

University of Virginia  
Charlottesville, Virginia  
Permit No. VRO40200

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, the University of Virginia has applied for a renewal of the Title V Operating Permit for its Charlottesville, Virginia campus. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact: Signed original Date: 11/15/11  
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## FACILITY INFORMATION

### Permittee

University of Virginia  
Charlottesville, Virginia

### Facility

University of Virginia  
P. O. Box 400228  
Charlottesville, VA 22904-4228

County-Plant Identification Number: 51-540-0003

## SOURCE DESCRIPTION

SIC Code	Manufacturing Description
8221	Colleges/Universities

The University of Virginia (UVA) is a publicly funded institute for higher education located in Charlottesville, Virginia. UVA is an extensive campus with facilities including classrooms, dormitories, laboratories, medical center, athletic complexes, research facilities, and various support facilities. Emissions sources at UVA consist of a Main Heating Plant (MHP), two smaller heating plants, a coal and ash handling system, other fuel burning equipment (boilers, hot water heaters, etc.), electrical generators, woodworking equipment and ethylene oxide sterilizers.

### Main Heating Plant

The MHP currently consists of a total of five boilers of differing sizes to produce steam for heat and related university operations, in addition to a lime storage silo to support scrubber operations:

- INDECK Coal and Natural Gas-fired Boiler with a maximum rated heat input capacity of 95 MMBtu/hr (Boiler 1R – Ref. No. 7103-1-01R)
- IBW Coal and Natural Gas-fired Boiler with a maximum rated heat input capacity of 95 MMBtu/hr (Boiler 2R – Ref. No. 7103-1-02R)
- Nebraska Natural Gas and Distillate Oil-Fired Boiler with a maximum rated heat input capacity of 112.5 MMBtu/hr (Boiler 3R – Ref. No. 7103-1-03R)
- Nebraska Natural Gas and Distillate Oil-Fired Boiler with a maximum rated heat input capacity of 112.5 MMBtu/hr (Boiler 4R – Ref. No. 7103-1-04R)
- Keeler Coal and Natural Gas-Fired Boiler with a maximum rated heat input capacity of 112.5 MMBtu/hr (Boiler 5 – Ref. No. 7103-1-05)
- SPE Lime Storage Silo

### Coal and Ash Handling System

Coal is transported to the coal handling facility mostly via railcar, although during emergency situations coal can be delivered by trucks. The coal handling system consists of four coal silos, three coal bunkers and miscellaneous coal conveyors and material handling equipment. The ash handling system consists of two ash storage silos with associated conveyance and unloading systems.

### Other Fuel Burning Equipment

Due to the extensive nature of the UVA academic campus, it is not feasible for the Main Heating Plant to provide heat and steam to all of the contiguous buildings. Therefore, some facilities maintain separate furnaces and small boilers for the purposes of providing building heat and hot water. These smaller units burn either distillate oil or natural gas.

### Electrical Generators

UVA maintains emergency electrical generators. The generators are fueled with diesel fuel (distillate oil), natural gas, or propane. The generators range in size up to 2,500 kilowatts (kW). In 2010, UVA enrolled all its generators in an Emergency Load Response Program (ELRP). Operation of each emergency electrical generator is less than 500 hours per year.

### Woodworking Equipment

Maintenance activities performed at UVA include woodworking. UVA has several woodworking shops throughout the campus. Small-job painting and finishing are performed in addition to woodworking at most of the shops. Operations at these locations do not include the manufacturing of wood furniture. Manufacturing of wood furniture takes place at the Facilities Management (FM) - Cabinet Shop. The actual woodworking operations generate particulate emissions which, in the case of the Facilities Management-Cabinet Shop (Ref. 0245-1-01), are discharged via a baghouse filtering system.

### Medical Equipment

UVA maintains two ethylene oxide sterilizers for hospital use. The sterilizers are located at the University's hospital and are used to sterilize various surgical and other medical equipment. These sterilizers are exempt from Subpart O MACT requirements under 40 CFR 63.360 (e), and from Subpart WWWW MACT under 40 CFR 63.10382 (a).

## **CHANGES TO EXISTING TITLE V PERMIT**

The following changes have been made to the existing Title V permit, dated November 13, 2004:

### Section I – Facility Information

The facility information has been updated to include the changes in equipment.

### Section II – Emission Units

The emission units section has been updated to include the new emission units, control devices, and permit dates.

### Section III - Main Heating Plant

The July 5, 2005 NSR/PSD permit for the Main Heating Plant (MHP) was amended November 16, 2005, October 19, 2007, December 16, 2009 and March 22, 2010. The facility replaced three of the five boilers, upgraded air pollution control systems on two existing boilers, and installed a 2,000 kW emergency generator and SPE Lime Storage Silo.

The Title V permit has been updated to include the revisions to the main heating plant NSR/PSD permit (dated 7/5/05 as amended 11/16/06, 10/19/07, 12/16/09 and 3/22/10). Conditions from the NSR permit regarding the 2,000 kW emergency generator have been included in Section VI (Electrical Generators) of the Title V permit. Boilers 1R, 2R and 5 (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for PM. The CAM Plan is provided in Attachment E.

### Section IV – Coal Handling Equipment

The February 14, 1986 NSR permit for the Coal and Ash Handling Equipment was superseded on July 23, 2007. The new permit covered a new ash silo and mechanical coal conveyance system which replaced the pneumatic system. The July 23, 2007 permit was amended on April 9, 2009, to reflect the actual built condition which no longer included emergency truck unloading equipment or the proposed fifth coal silo and associated conveyors.

The Title V permit has been updated to include the revisions to the coal and ash handling NSR permit (dated 7/23/07 as amended 4/9/09).

### Section V – Other Fuel Burning Equipment

The fuel burning section of the Title V permit has been updated to include all fuel burning emission units currently installed at the facility.

### Section VI – Electrical Generators

The Electrical Generators section of the Title V permit has been updated to include all emission units currently installed at the facility. All new NSR permits, and changes to existing NSR permits have been incorporated into the Title V permit. The Title V permit has also been updated to include the requirements from 40 CFR 60 Subpart IIII (NSPS) and 40 CFR 63 Subpart ZZZZ (MACT) for internal combustion engines.

#### Section VII – Woodworking Equipment

The facility requested a wording change in the Monitoring and Recordkeeping section of the permit. The facility requested ‘throughput (in gallons) of wood furniture coatings and adhesives’ be changed to ‘usage (in gallons) of wood furniture coatings and adhesives’ to better reflect the actual use of the coatings and adhesives.

#### Section VIII – Medical Equipment

There are no changes to the Medical Equipment section of the Title V permit.

#### Section IX – Insignificant Emission Units

The section has been updated to include all insignificant emission units currently in operation at the facility. In some cases, units listed as insignificant in the previous Title V permit are now considered significant as a result of regulatory changes, i.e., 40 CFR 63 Subpart ZZZZ and 40 CFR 60 Subparts IIII and JJJJ for internal combustion engines.

#### Section X – Permit Shield and Inapplicable Requirements

There are no applicable Greenhouse Gas (GHG) permitting requirements.

### **COMPLIANCE STATUS**

A full compliance evaluation of this facility, including a site visit, was last conducted on July 23, 2009. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or general applicable requirements at this time. The facility is inspected at least once every two years.

### **COMPLIANCE ASSURANCE MONITORING (CAM) PLAN APPLICABILITY**

A “large” pollutant specific emission unit (PSEU) is defined as a unit that has potential pre-control emissions greater than a major source threshold on a unit-by-unit and pollutant-by-pollutant basis.

Boilers 1R, 2R and 5 (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) are coal and natural gas fired boilers. The pre-controlled emissions of nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>) and particulate matter (PM/PM-10) from each boiler (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) exceed the major source threshold of 100 tons/yr. Each boiler (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) uses control devices to control emissions of NO<sub>x</sub>, SO<sub>2</sub>, and PM/PM-10. NO<sub>x</sub> emissions from Boilers 1R, 2R and 5 (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) are controlled by over-fire air (OFA) and flue gas recirculation (FGR) during coal firing and low NO<sub>x</sub> burners and FGR during natural gas firing; SO<sub>2</sub> and PM/PM-10 emissions from Boilers 1R, 2R and 5 (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) are each controlled by a semi-dry scrubber and baghouse, respectively.

Each boiler (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) satisfies the five requirements of the CAM applicability requirements listed in EPA's Table 1-1 CAM guidance; the boilers (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) are therefore subject to Compliance Assurance Monitoring (CAM) for PM/PM-10. The CAM plan for PM/PM-10 is available in Attachment E; the complete CAM submittal is available in the Title V permit renewal application. CAM is not applicable to any other emission units or pollutants at the facility because the potential emissions are below the major source thresholds on a unit-by-unit basis.

Emissions of NO<sub>x</sub> and SO<sub>2</sub> from Boilers 1R, 2R and 5 (Ref. Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) are exempt from CAM. Each boiler has Continuous Emissions Monitors (CEMs) for NO<sub>x</sub> and SO<sub>2</sub> emissions, as required by the NSR permit dated July 5, 2005, as amended November 16, 2005, October 19, 2007, December 16, 2009 and March 22, 2010. The CEMs meet the requirements for a "continuous compliance determination method" in accordance with the Title V Guidelines in the Title V permit manual; therefore CAM is not applicable for these pollutants for the boilers (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05). There are no CO or VOC control devices installed on Boilers 1R, 2R or 5, therefore CAM is not applicable for these pollutants.

None of the emissions from Boilers 3R and 4R (Ref. 7103-1-03R and 7103-1-04R), other fuel burning equipment, generators, coal handling equipment, woodworking equipment, various small individual building boilers, or medical equipment are subject to CAM requirements because their emissions are not high enough and/or there are no control devices installed on these sources.

CAM applicability for each category is discussed in greater detail below.

## EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

*Table I. Significant Emission Units*

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
<b>Main Heating Plant</b>							
7103-1-01R	7103-1	BOILER 1R – INDECK (2007) (Coal)	95 Million BTU/hr	Baghouse, Semi-dry Scrubber, Flue-gas recirculation (FGR) system, over-fire air & Low NOx Burner	7103- BH1R & 7103-SB1	PM-10 , Lead, SOx, and NOx	7/5/05 Permit (Amended 11/26/05, 10/19/07, 12/16/09 & 3/22/10)
		BOILER 1R – INDECK (2007) (Natural Gas)					
7103-1-02R	7103-1	BOILER 2R – IBW (1987) (Coal)	95 Million BTU/HR	Baghouse, Semi-dry Scrubber, Flue-gas recirculation (FGR) system, over-fire air & Low NOx Burner	7103- BH2R & 7103-SB2	PM-10 , Lead, SOx, and NOx	7/5/05 Permit (Amended 11/26/05, 10/19/07, 12/16/09 & 3/22/10)
		BOILER 2R – IBW (1987) (Natural Gas)					
7103-1-03R	7103-1	BOILER 3R – Nebraska (2005) (Distillate Oil)	112.5 Million BTU/HR	Flue-gas recirculation (FGR) system & Low NOx Burner	-	NOx	7/5/05 Permit (Amended 11/26/05, 10/19/07, 12/16/09 & 3/22/10)
		BOILER 3R – Nebraska (2005) (Natural Gas)					
7103-1-04R	7103-1	BOILER 4R – Nebraska (2005) (Distillate Oil)	112.5 Million BTU/HR	Flue-gas recirculation (FGR) system & Low NOx Burner	-	NOx	7/5/05 Permit (Amended 11/26/05, 10/19/07, 12/16/09 & 3/22/10)
		BOILER 4R – Nebraska (2005) (Natural Gas)					

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
7103-1-05	7103-1	BOILER 5 – Keeler (1985) (Coal)	112.5 Million BTU/HR	Baghouse, Semi-dry Scrubber, Flue-gas recirculation (FGR) system, over-fire air & Low NOx Burner	7103-BH5 & 7103-SB5	PM-10 , Lead, SOx, and NOx	7/5/05 Permit (Amended 11/26/05, 10/19/07, 12/16/09 & 3/22/10)
		BOILER 5 – Keeler (1985) (Natural Gas)					
7103-LM1	-	SPE Lime Storage Silo (2006)	3,900 ft <sup>3</sup>	Cartridge filter	-	PM-10	7/5/05 Permit (Amended 11/26/05, 10/19/07, 12/16/09 & 3/22/10)
<b>Coal and Ash Handling System</b>							
H1A, H1B, H2A, H2B, H3A, H3B, H4A and H4B	-	Railcar Coal Receiving Hoppers	20 tons/hr (each)	(inside closed building)	-	PM-10	7/23/07 Permit (Amended 4/9/09)
GS1, GS2, GS3, GS4, GS5, GS6, GS7 and GS8	-	Grizzly Screens	400 tons/hr (total)	(inside closed building)	-	PM-10	7/23/07 Permit (Amended 4/9/09)
C1 and C3	-	Coal Conveyors from Grizzly Screens to Chain Elevator	40 tons/hr (each)	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
C2 and C4	-	Coal Conveyors from Grizzly Screens to Chain Elevator	80 tons/hr (each)	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
E1	-	Coal Chain Elevator	80 tons/hr	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
CCS1	-	Coal Crusher Screen	80 tons/hr	Cartridge filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)



Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CR1	-	Coal Crusher	25 tons/hr	Cartridge filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)
C5	-	Conveyor from Crusher to Bucket Elevator	80 tons/hr	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
E2	-	Bucket Elevator	80 tons/hr	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
C6	-	Coal Conveyor from Bucket Elevator to Coal Silos	80 tons/hr	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
7103-CS1	7103-CS1	Storage Coal Silo	1,100 ton	Cartridge filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)
7103-CS2	7103-CS2	Storage Coal Silo	1,100 ton	Cartridge filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)
7103-CS3	7103-CS3	Storage Coal Silo	1,100 ton	Cartridge filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)
7103-CS4	7103-CS4	Storage Coal Silo	1,100 ton	Cartridge filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)
C7, C8, C9, and C10	-	Coal Conveyors from Silos to Chain Elevators	20 tons/hr (each)	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
E3 and E4	-	Coal Chain Elevators	20 tons/hr (each)	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
C11 and C12	-	Coal Conveyors from Chain Elevator to Coal Bunker	20 tons/hr (each)	Complete enclosure	-	PM-10	7/23/07 Permit (Amended 4/9/09)
B1, B2, and B5	-	Coal Bunkers	80 tons/hr (each)	Cartridge filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)
FAS	FSS-1 to FSS-3	Fly Ash Silo	325 tons	Fabric filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
BAS	BAS-1 to BAS-2	Bottom Ash Silo	112.9 tons	Fabric filter	-	PM-10	7/23/07 Permit (Amended 4/9/09)
<b>Other Fuel Burning Equipment</b>							
0580-2-01	0580-2	Cleaver Brooks Model # CB 200-40 (1970) (#2 Fuel Oil) Carruthers Hall	1.7 Million BTU/HR	-	-	-	-
		Cleaver Brooks Model # CB 200-40 (1970) (Natural Gas)					
0603-1-01	0603-1	Weil-McLain Model # 788 (1991) (#2 Fuel Oil) Faulkner House	1.6 Million BTU/HR	-	-	-	-
		Weil-McLain Model # 788 (1991) (Natural Gas)					
1600-1-01	1600-1	NRC Model #9-47 (1991) (#2 Fuel Oil) KCRC	1.1 Million BTU/HR	-	-	-	-
1760-2-01	1760-2	Cleaver Brooks Model CB/LE 700-250-125 HW (Natural Gas) Sheridan G. Snyder Building	10.2 Million BTU/hr	-	-	-	-
1760-2-02	1760-2	Cleaver Brooks Model CB/LE 700-250-125 HW (Natural Gas) Sheridan G. Snyder Building	10.2 Million BTU/hr	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
5575-1-01	5575-1	Unilux Bent Water Tube Model ZF1200 (2005) (Natural Gas) Massie Road Heat Plant (JPJ Parking Garage)	12.0 Million BTU/HR	- -	- -	- -	- 10/13/04 Permit (Amended 3/22/10)
		Unilux Bent Water Tube Model ZF1200 (2005) (Distillate Oil)					
5575-1-02	5575-1	Unilux Bent Water Tube Model ZF1200 (2005) (Natural Gas) Massie Road Heat Plant	12.0 Million BTU/HR	-	-	-	10/13/04 Permit (Amended 3/22/10)
		Unilux Bent Water Tube Model ZF1200 (2005) (Distillate Oil)					
5575-1-03	5575-1	Unilux Bent Water Tube Model ZF1200 (2005) (Natural Gas) Massie Road Heat Plant	12.0 Million BTU/HR	-	-	-	10/13/04 Permit (Amended 3/22/10)
		Unilux Bent Water Tube Model ZF1200 (2005) (Distillate Oil)					
5575-1-04	5575-1	Unilux Bent Water Tube Model ZF1200 (2005) (Natural Gas) Massie Road Heat Plant	12.0 Million BTU/HR	-	-	-	10/13/04 Permit (Amended 3/22/10)
		Unilux Bent Water Tube Model ZF1200 (2005) (Distillate Oil)					

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
5576-1-01	5576-1	Cleaver Brooks Model #CB 428-300 (1964) (#2 Fuel Oil) University Hall	12.6 Million BTU/HR	-	-	-	-
		Cleaver Brooks Model #CB 428-300 (1964) (Natural Gas)					
5576-1-02	5576-1	Cleaver Brooks Model #CB 428-300 (1964) (#2 Fuel Oil) University Hall	12.6 Million BTU/HR	-	-	-	-
		Cleaver Brooks Model #CB 428-300 (1964) (Natural Gas)					
5577-1-01	5577-1	Kewanee Model #L3W-250-GD2 (1990) (#2 Fuel Oil) Frank C. McCue Center	10.7 Million BTU/HR	-	-	-	3/29/90 Permit (Amended 11/14/90)
		Kewanee Model #L3W-250-GD2 (1990) (Natural Gas)					
7533-1-01	7533-1	FLO-KNTRL #1 (1973) (Natural Gas) North Grounds Heat Plant	15 Million BTU/HR	-	-	-	-
		FLO-KNTRL #1 (1973) (#2 Fuel Oil)					
7533-1-02	7533-1	FLO-KNTRL #2 (1973) (Natural Gas) North Grounds Heat Plant	15 Million BTU/HR	-	-	-	-
		FLO-KNTRL #2 (1973) (#2 Fuel Oil)					

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
<b>Electrical Generators and Fire Pumps</b>							
0068-1-01	0068-1	Kohler 500ROZD4/Gen 5M4027 Emergency Generator (Diesel) Clark Hall	505 kW	-	-	-	-
0094-1-01	0094-1	Kohler Model 125REOJB-GA7 Emergency Generator (Diesel) Bryan Hall	125 kW	-	-	-	-
0122-1-01	0122-1	Olympian Model 96A-01830-S Emergency Generator (Diesel) Newcomb Hall	20 kW	-	-	-	-
0125-1-01	0125-1	Kohler Model 15ROZ81 Emergency Generator (Diesel) Central Grounds Garage	15 kW	-	-	-	-
0126-1-01	0126-1	Kohler Model 300 REOZD Emergency Generator (Diesel) Clemons Library	300 kW	-	-	-	-
0131-1-01	0131-1	Caterpillar Model D150-8 Emergency Generator (Diesel) Elson Student Health	150 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
0201-1-01	0201-1	Kohler Model 150REOZJB Emergency Generator (Diesel) OHill Dining	160 kW	-	-	-	-
0207-1-01	0207-1	Olympian Model 300 ROZ71 Emergency Generator (Diesel) Zehmer Hall	230 kW	-	-	-	-
0210-1-01	0210-1	Kohler Model 300ROZ71 Emergency Generator (Diesel) Gilmer Hall	300 kW	-	-	-	-
0210-2-01	0210-2	Kohler Model 260RHOZ71 Emergency Generator (Diesel) Gilmer Hall	260kW	-	-	-	-
0210-3-01	0210-3	Olympian Model 97A 04381S Emergency Generator (Diesel) Gilmer Hall-Chemistry Loading Dock	175 kW	-	-	-	-
0210-4-01	0210-4	Olympian Model 93A01427-S BD13P2 Emergency Generator (Diesel) Gilmer Hall-Chemistry Loading Dock	13 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
0214-1-01	0214-1	Caterpillar Model C9 (Diesel) Rice Hall	300 kW	-	-	-	-
0215-1-01	0215-1	Caterpillar Model C32 DITA (Diesel) CAS Building	1000 kW	-	-	-	-
0228-1-01	0228-1	Kohler Model 55RO71 Emergency Generator (Diesel) Leake Building	60 kW	-	-	-	-
0256-1-01	0256-1	Caterpillar Model D333 Emergency Generator (Diesel) Chemistry Loading Dock	125 kW	-	-	-	-
0256-2-01	0256-2	Generac Model SD0040 Emergency Generator (Diesel) Chemistry Loading Dock	40 kW	-	-	-	-
0256-3-01	0256-3	Kohler Model 180REOZJD Emergency Generator (Diesel) Chemistry Loading Dock	180 kW	-	-	-	-
0264-1-01	0264-1	Caterpillar Model C9 Emergency Generator (2009) (Diesel) Bavaro Hall	250 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
0267-1-01	0267-1	Kohler Model 1000REOZDB Emergency Generator (Diesel) Wilsdorf Hall	975 kW	-	-	-	-
0396-1-01	0396-1	Generac Model 91A02361-5 Emergency Generator (Propane) Runk Dining Hall	40 kW	-	-	-	-
0401-1-01	0401-1	Kohler Model 180REOZJB Emergency Generator (Diesel) Central Garage	180 kW	-	-	-	-
0446-1-01	0446-1	Kohler Model 100 REOZJD Emergency Generator (Diesel) Culbreth Road Garage	100 kW	-	-	-	-
0527-1-01	0527-1	Onan Model 200-DFR- 17R/17911K Emergency Generator (Diesel) Withers-Brown Hall	200 kW	-	-	-	-
0528-1-01	0528-1	Generac Model 20A04051-S Emergency Generator (Diesel) Slaughter Hall – ITC	75 kW	-	-	-	-



Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
0534-1-01	0534-1	Kohler Model 125ROZ271 Emergency Generator (Diesel) JAG School Addition	125 kW	-	-	-	-
0552-1-01	0552-1	Cummins Model (U) DFCB-4962632 Emergency Generator (Diesel) Darden Faculty	300 kW	-	-	-	-
0555-1-01	0555-1	Onan Model GGFD-4962633 Emergency Generator (Natural Gas) Darden Parking Garage	35 kW	-	-	-	-
0594-1-01	0594-1	Clark Model JU4H UFAD4G Fire Pump (Diesel) Ivy Stacks	100 hp	-	-	-	-
0599-1-01	0599-1	Caterpillar Model 3516 CDITA Emergency Generator (Diesel) 2476 Old Ivy Road	2500 kW	-	-	-	6/9/10 Permit
0627-1-01	0627-1	Kohler Model 30RZ282 Emergency Generator (Natural Gas) UVA Police Station	33 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
1142-1-01	1142-1	Kohler Model 2000REOZMB Emergency Generator (Diesel) Jordan Hall (Old)	2000 kW	-	-	-	-
1142-2-01	1142-2	GE Model (G) 1500 DFMB Emergency Generator (Diesel Fuel) Jordan Hall Addition	1500 kW	-	-	-	-
1142-3-01	1142-3	Generac Model 486350100 Emergency Generator (Diesel) Old Jordan Vivarium	230 kW	-	-	-	-
1143-1-01	1143-1	Onan Model 230-0-DFM-17R- 16896 Emergency Generator (Diesel) Primary Care	250 kW	-	-	-	-
1146-1-01	1146-1	Caterpillar Model C9 DITA Emergency Generator (Diesel) Emily Couric Clinical Cancer Center	250 kW	-	-	-	-
1148-1-01	1148-1	Caterpillar Model 3512 Emergency Generator (Diesel) Lee Street Garage - Hospital	910 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
1148-2-01	1148-2	Caterpillar Model 3512 Emergency Generator (Diesel) Lee St Garage - Hospital	910 kW	-	-	-	-
1148-3-01	1148-3	Caterpillar Model 3512 Emergency Generator (Diesel) Lee St Garage – Hospital	910 kW	-	-	-	-
1148-4-01	1148-4	Caterpillar Model A6511-20-24V-A Emergency Generator (Diesel) Lee St Garage – Hospital	1076 kW	-	-	-	-
1148-5-01	1148-5	Caterpillar Model C32DITA Emergency Generator (Diesel) Lee St Garage – Hospital	1000 kW	-	-	-	-
1148-6-01	1148-6	Cummins Model N-495-FP Fire Pump (Diesel) Lee St Garage – Hospital	113 hp	-	-	-	-
1149-1-01	1149-1	Caterpillar Model D150-8 Emergency Generator (Diesel) 11 <sup>th</sup> St Garage	150 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
1149-2-01	1149-2	Caterpillar Model 3516C-HC Emergency Generator (Diesel) 11 <sup>th</sup> St Parking Garage	2500 kW	-	-	-	1/12/11 Permit
1149-3-01	1149-3	Caterpillar Model 3516C-HC Emergency Generator (Diesel) 11 <sup>th</sup> St Parking Garage	2500 kW	-	-	-	1/12/11 Permit
1149-4-01	1149-4	Caterpillar Model 3512C (Diesel) 11 <sup>th</sup> St Parking Garage	1500 kW	-	-	-	1/12/11 Permit
1149-5-01	1149-5	Kohler Model 250REOJE (Diesel) 11 <sup>th</sup> St Parking Garage – Connective Elements	250 kW	-	-	-	-
1154-1-01	1154-1	Kohler Model 80R02J Emergency Generator (Diesel) South Parking Garage	91 kW	-	-	-	-
1155-1-01	1155-1	Onan Model DFLE-4492628 Emergency Generator (Diesel) Biomedical Eng – MR5	1500 kW	-	-	-	-
1161-1-01	1161-1	Caterpillar Model 3516B Emergency Generator (Diesel) Carter-Harrison MR6	2000 kW	-	-	-	12/20/07 Permit (Amended 3/22/10)

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
1172-1-01	1172-1	Caterpillar Model C18 Emergency Generator (Diesel) Multistory	600 kW	-	-	-	-
1172-2-01	1172-2	Caterpillar Model SR4 Emergency Generator (Diesel) Multistory	260 kW	-	-	-	-
1176-1-01	1176-1	Caterpillar Model (U) D3208A Emergency Generator (Diesel) Clinical Wing - Penthouse	50 kW	-	-	-	-
1176-2-01	1176-2	Caterpillar Model (U) 4996195 Emergency Generator (Diesel) Clinical Wing - Lithotripter	150 kW	-	-	-	-
1181-1-01	1181-1	Newage Model D250FPJ4 Emergency Generator (Diesel) Medical School Building - Penthouse	250 kW	-	-	-	-
1194-1-01	1194-1	Cummins Model GFDB-5712916 Emergency Generator (Diesel) Cobb Hall	600 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
1196-1-01	1196-1	Onan Model 500DFFB Emergency Generator (Diesel) Davis Transformer	500 kW	-	-	-	-
1196-2-01	1196-2	Caterpillar Model D337F Emergency Generator (Diesel) Davis Transformer	150 kW	-	-	-	-
1600-2-01	1600-2	Olympian Model D75P3 Emergency Generator (Diesel) KCRC	75 kW	-	-	-	-
1600-3-01	1600-3	Caterpillar Model D60P3 Emergency Generator (Diesel) KCRC-ITC	60 kW	-	-	-	-
1760-1-01	1760-1	Kohler Model 2000 REOZMB Emergency Generator (Diesel) Sheridan G. Snyder Bldg	2000 kW	-	-	-	-
1985-1-01	1985-1	Caterpillar Model SR4B Emergency Generator (Diesel) Stacey Hall	1000 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
1998-1-01	1998-1	Caterpillar Model 3412C Emergency Generator (Diesel) Clinical Laboratory	800 kW	-	-	-	-
2368-1-01	2368-1	Generac Model SC200 Emergency Generator (Diesel) Kellogg House	200 kW	-	-	-	-
2371-1-01	2371-1	Cummins Model 400 DFEH Emergency Generator (Diesel) Alderman Dorms Commons	400 kW	-	-	-	-
2464-1-01	2464-1	Caterpillar Model D60P3 Emergency Generator (Diesel) Lambeth Commons	60 kW	-	-	-	-
3656-1-01	3656-1	Kohler Model 40REOZJB Emergency Generator (Diesel) 2400 Old Ivy Road	40 kW	-	-	-	-
3708-1-01	3708-1	Olympian Model D75P3 Emergency Generator (Diesel) UVA Outpatient Surgery	75 kW	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
3759-1-01	3759-1	Caterpillar Model D 150 pl Emergency Generator (Diesel) 400 Ray C Hunt Drive	150 kW	-	-	-	-
3761-1-01	3761-1	Kato Model D1000FR44 Emergency Generator (Diesel) Aurbach Medical Building	1500 kW	-	-	-	-
5271-1-01	5271-1	Kohler Model 100RO2J71 Emergency Generator (Diesel) Aquatic Fitness Center	100 kW	-	-	-	-
5307-1-01	5307-1	Kohler Model 80ROZJ Emergency Generator (Diesel) Scott Stadium – west	81 kW	-	-	-	-
5307-2-01	5307-2	Kohler Model 300REOZD Emergency Generator (Diesel) Scott Stadium – south	300 kW	-	-	-	-
5307-3-01	5307-3	Kohler Model 350REOZD Emergency Generator (Diesel) Scott Stadium – east	355 kW	-	-	-	-



Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
5502-1-01	5502-1	Generac Model SD080 Emergency Generator (Diesel) Klockner Stadium	80 kW	-	-	-	-
5506-1-01	5506-1	Kohler Model 150Z Emergency Generator (Diesel) Baseball Stadium	15 kW	-	-	-	-
5575-2-01	5575-2	Cummins Model QSK60 Emergency Generator (Diesel) Massie Road Heat Plant	2000 kW	-	-	-	10/13/04 Permit (Amended 3/22/10)
5576-2-02	5576-2	Caterpillar Model D90P1 Emergency Generator (Diesel) U-Hall ITC	90 kW	-	-	-	-
5576-3-01	5576-3	Caterpillar Model D320A Emergency Generator (Diesel) U-Hall	50 kW	-	-	-	-
7103-2-01	7103-2	Caterpillar Model SR-4 Emergency Generator (Diesel) Main Heat Plant	1250 kW	-	-	-	6/29/05 Permit (Amended 3/22/10)

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
7103-3-01	7103-3	Caterpillar Model SR-4 Emergency Generator (Diesel) Main Heat Plant	2000 kW	-	-	-	7/5/05 Permit (Amended 11/26/05, 10/19/07, 12/16/09 & 3/22/10)
7147-1-01	7147-1	Caterpillar Model D150-8 Emergency Generator (Diesel) Telephone Exchange	150 kW	-	-	-	-
7185-1-01	7185-1	Kohler Model 1500ROZD4 Emergency Generator (Diesel) South Chiller Plant	1500 kW	-	-	-	-
7533-2-01	7533-2	Caterpillar Model H5452/3 Emergency Generator (Diesel) North Grounds Mech. Plant	150 kW	-	-	-	-
7369-1-01	7369-1	Kohler Model 01938 Emergency Generator (Propane) East Water Tank	10 kW	-	-	-	-
<b>Woodworking Equipment</b>							
0245-1-01	0245-1	FM Cabinet Shop: saws, belt sanders and other woodworking and finishing equipment	-	National System Model NSGV 3415 (2001)	0245- BH1	PM-10	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity *	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
<b>Medical Equipment</b>							
1150-1-04	1150-1	Ethylene Oxide Sterilizer 3M Model 400DGP Hospital	100g EtO/ 14 hrs	-	-	-	6/29/05 Permit (Amended 3/22/10)
1150-1-05	1150-1	Ethylene Oxide Sterilizer 3M Model 487AGP Hospital	100g EtO/ 14 hrs	-	-	-	6/29/05 Permit (Amended 3/22/10)

\*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

## EMISSIONS INVENTORY

A copy of the 2009 annual emission update is included in Attachment A. Emissions are summarized in the following tables.

*Table II. 2009 Actual Criteria Pollutant Emissions*

	Criteria Pollutant Emissions (tons/yr)				
	VOC	CO	SO <sub>2</sub>	PM-10	NO <sub>x</sub>
Total	2.36	102.46	36.33	16.81	143.42

*Table III. 2009 Actual Hazardous Air Pollutant Emissions*

Pollutant	Hazardous Air Pollutant Emissions (tons/yr)
Non-VOC/Non-PM HAPs	20.42

## **EMISSION UNIT APPLICABLE REQUIREMENTS**

### **Main Heating Plant**

#### *Limitations*

The following limitations are state BACT, NSPS Subpart Dc and NSPS Subpart Db requirements from the minor NSR permit issued on July 5, 2005, including the amendments issued on November 16, 2005, October 19, 2007, December 16, 2009 and March 22, 2010. Permit conditions for the emergency generator (Ref. 7103-3-01) are included in Section VI of the Title V permit. Please note that the condition numbers are from the NSR permit. A copy of this document is enclosed in Attachment B.

- |                     |  |
|---------------------|--|
| Condition 2:        | Particulate matter emissions from Boilers 2R and 5 (Ref. 7103-1-02R and 7103-1-05) are to be controlled through a baghouse when firing coal.   |
| Condition 3:        | The approved fuels for boilers 2R and 5 (Ref. 7103-1-02R and 7103-1-05) are natural gas and coal.  |
| Conditions 4 and 5: | Short-term emission limits for boilers 2R and 5 (Ref. 7103-1-02R and 7103-1-05), respectively. Short-term emission limits for NO <sub>x</sub> and SO <sub>2</sub> , when firing coal, are 30-day rolling averages; short-term emission limits for NO <sub>x</sub> when firing natural gas are 30-day rolling averages. |
| Condition 7:        | Particulate matter emissions from Boiler 1R (Ref. 7103-1-01R) are to be controlled through a baghouse when firing coal.  |
| Condition 8:        | Sulfur dioxide emissions from boilers 1R, 2R and 5 (Ref. 7103-1-01R, 7103-1-2R and 7103-1-05) are to be controlled by semi-dry scrubbers (Ref. 7103-SB1, 7103-SB2 and 7103-SB5) when firing coal.  |
| Condition 9:        | Each semi-dry scrubber (Ref. 7103-SB1, 7103-SB2 and 7103-SB5) shall maintain a control efficiency of no less than 92 percent for SO <sub>2</sub> emissions measured by a continuous emissions monitoring (CEM) system, calculated on a 30 day rolling average.   |
| Condition 10:       | NO <sub>x</sub> emissions from each boiler (Ref. 7103-1-01R, 7103-1-02R & 7103-1-05) shall be controlled by the use of over-fire air (OFA) and flue gas recirculation (FGR) when firing coal.  |

- Condition 11: NO<sub>x</sub> emission from each boiler (Ref. 7103-1-01R, 7103-1-02R, 7103-1-03R, 7103-1-04R & 7103-1-05) shall be controlled by the use of low-NO<sub>x</sub> burners and flue gas recirculation (FGR) when firing natural gas.
- Condition 12: Particulate emissions from filling the lime silo (Ref. 7103-LM1) shall be controlled by fabric filter.
- Condition 13: Particulate emissions at the lime silo (7103-LM1) discharge shall be controlled by conveying the lime through a closed system directly into the scrubber.
- Condition 20: The condition lists the approved fuels for Boilers 1R, 3R and 4R (Ref. 7103-1-01R, 7103-1-03R & 7103-1-04R). Boiler 1R is approved to use natural gas and coal; Boilers 3R and 4R are each approved to use natural gas and distillate oil.
- Condition 23: The condition limits the fuel throughputs for Boilers 1R, 2R, 3R, 4R and 5 (Ref. 7103-1-01R, 7103-1-02R, 7103-1-03R, 7103-1-04R & 7103-1-05). The boilers share combined fuel throughput limits.
- Condition 24: The condition provides the fuel specifications for the coal, distillate oil and natural gas for Boilers 1R, 2R, 3R, 4R and 5 (Ref. 7103-1-01R, 7103-1-02R, 7103-1-03R, 7103-1-04R & 7103-1-05).
- Condition 26: Emissions from the boilers (Ref. 7103-1-01R, 7103-1-02R, 7103-1-03R, 7103-1-04R & 7103-1-05) shall be controlled through proper operation and maintenance.
- Condition 28: The condition provides the short-term emission limits for Boiler 1R (Ref. 7103-1-01R) when firing natural gas or coal. Short-term emission limits for NO<sub>x</sub> and SO<sub>2</sub>, when firing coal, are 30-day rolling averages; short-term emission limits for NO<sub>x</sub>, when firing natural gas, are 30-day rolling averages as well.
- Conditions 29 & 30: These conditions provides the short-term emission limits for Boiler 3R (Ref. 7103-1-03R) and Boiler 4R (Ref. 7103-1-04R) when firing distillate oil or natural gas. Short-term emission limits for NO<sub>x</sub>, when firing natural gas or distillate oil, are 30-day rolling averages; short-term emission limits for CO, when firing natural gas or distillate oil, are eight-hour rolling averages.
- Condition 31: The condition provides the annual emission limits for the five MHP boilers (Ref. 7103-1-01R, 7103-1-02R, 7103-1-03R, 7103-1-04R & 7103-1-05).

- Conditions 32 & 33: The condition sets short-term emission limits for Boilers 1R, 2R and 5 (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05) for NO<sub>x</sub> emissions during coal-fire startup periods and while simultaneously combusting coal and natural gas during fuel switching, until coal is no longer fired in the boiler. The NO<sub>x</sub> emission limitation of 0.35 lbs/MMBtu during coal-fire startups and fuel switching is more stringent than the applicable requirement in the New Source Performance Standards (NSPS), 40 CFR 60, Subpart Db.
- Condition 34: The condition establishes a visible emissions limit for the Main Heating Plant stack (Ref. 7103-1). All five boilers share a common stack.
- Condition 36: The condition establishes a visible emission limit for the lime silo (7103-LM1).
- Condition 37: Except where the NSR and Title V permit are more restrictive, Boilers 3R, 4R and 5 (Ref. 7103-1-03R, 7103-1-04R & 7103-1-05) shall be operated in compliance with the requirements of 40 CFR 60, Subpart Db.
- Condition 38: Except where the NSR and Title V permit are more restrictive, Boiler 1R (Ref. 7103-1-01R) shall be operated in compliance with the requirements of 40 CFR 60, Subpart Dc.

The following Virginia Administrative Codes and Federal New Source Performance Standards have specific emission requirements that have been determined to be applicable:

9 VAC 5-50-400 and 9 VAC 5-50-410, Standards of Performance for New and Modified Stationary Sources

Boiler 1R (7103-1-01R) is subject to the New Source Performance Standards of 40 CFR 60, Subpart Dc; Boilers 3R, 4R and 5 (Ref. 7103-1-03R, 7103-1-04R, & 7103-1-05) are all subject to the New Source Performance Standards of 40 CFR 60, Subpart Db. All applicable requirements from the subparts have been included in the NSR permit; the existing NSR permit contains limitations as stringent as, or more stringent than, the requirements listed above. Therefore there are no additional specific emission requirements that are applicable under 9 VAC 5-50-400 or 9 VAC 5-50-410, Standards of Performance for New and Modified Stationary Sources.

In addition to the incorporation of the New Source Performance Standards required in 9 VAC 5-50-400 and 9 VAC 5-50-410, the following Virginia Administrative Codes and Federal New Source Performance Standards have specific emission requirements that have been determined to be applicable:

- 9 VAC 5-40-900, Existing Source Standard for Particulate Matter (ACQR 1-6)
- 9 VAC 5-40-930, Existing Source Standard for Sulfur Dioxide (ACQR 1-6)
- 9 VAC 5-40-940, Existing Source Standard for Visible Emissions
- 9 VAC 5-50-80, New Source Standard for Visible Emissions

The existing NSR permit contains limitations as stringent as, or more stringent than, the requirements listed above. Additionally, the existing NSR permit contains the applicable requirements from the New Source Performance Standards (NSPS), Subparts Dc and Db.

### *Monitoring and Recordkeeping*

Monitoring and recordkeeping conditions for the emergency generator (Ref. 7103-3-01), listed in the NSR permit for the main heating plant (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10), are included in the Electrical Generators section (Section VI) of the Title V permit.

The following monitoring and recordkeeping conditions have been established to determine compliance with the limitations established in Section III.A of the Title V Permit.

### Boilers 1R, 2R and 5 – Short-Term Emissions

Boilers 1R, 2R and 5 are coal and natural-gas fired boilers. The uncontrolled potential emissions of NO<sub>x</sub>, SO<sub>2</sub> and PM/PM-10 for boilers 1R, 2R, and 5 are greater than 100 tons/yr, for each boiler. Each boiler uses over-fire air (OFA), a flue-gas recirculation (FGR) system and a low NO<sub>x</sub> burner to reduce NO<sub>x</sub> emissions and meet the emission limits in the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10). Each boiler utilizes a baghouse and semi-dry scrubber to reduce SO<sub>2</sub> and PM/PM-10 emissions to meet the hourly, 30-day rolling average and annual emission limits in the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10). Since Boilers 1R, 2R and 5 have uncontrolled emissions greater than or equal to 100 tons per year (for PM/PM-10), and each boiler is subject to an emission limitation and relies on control devices to meet the limits, each of the boilers is subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for PM/PM-10. The CAM applicability and outline of the CAM Plan is discussed in the *Compliance Assurance Monitoring* section, below. Although Boilers 1R, 2R and 5 have uncontrolled NO<sub>x</sub> and SO<sub>2</sub> emissions greater than or equal to 100 tons per year, and each boiler is subject to an emission limitation and relies on control devices to meet the limits, the boilers (Ref. 7103-1-01R, 7103-1-02R, & 7103-1-05) are not subject to CAM for NO<sub>x</sub> and SO<sub>2</sub>. Each boiler is equipped with Continuous Emissions Monitoring Systems (CEMS) to monitor emissions of NO<sub>x</sub> and SO<sub>2</sub> as required in Conditions 39 and 47 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10); since the Title V permit specifies the use of a CEMS and the CEMS provide a continuous compliance determination method for the emission limitations, emissions of NO<sub>x</sub> and SO<sub>2</sub> are exempt from CAM for the boilers (Ref. 7103-1-01R, 7103-1-02R, & 7103-1-05), in accordance with Chapter 9 of the Title V permitting manual and 40 CFR 64.2(b)(1)(vi).

Particulate (PM/PM-10) and lead emissions from Boilers 1R, 2R and 5, when firing coal, are controlled through the use of individual fabric filter baghouses. The permittee is required to



continuously measure the differential pressure across each baghouse as required in Condition 14 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10). As part of the monitoring requirements, the permittee must also install differential pressure alarms on the monitoring devices to detect operation outside the high and low differential pressure recommended by the manufacturer, as required in Condition 15 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10). The monitoring devices must be observed by the permittee no less than once per week of operation; records of the operations are required under Condition 18 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10).

Boilers 1R, 2R and 5 are also equipped with individual semi-dry scrubbers to control sulfur dioxide (SO<sub>2</sub>) emissions when combusting coal. The permittee is required to install devices to continuously measure the sorbent injection rate, as required in Condition 16 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10). The permittee is required to install monitoring device alarms to detect injection rates outside the high and low injection rates recommended by the manufacturer, as required in Condition 17 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10). The monitoring devices for the semi-dry scrubbers must be observed by the permittee with a frequency sufficient to ensure good performance, but no less than once per week; the permittee must continuously record measurements from the control equipment monitoring devices as required in Condition 19 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10).

The hourly emission limits established for Boilers 1R, 2R and 5 (Ref. 7103-1-01R, 7103-1-02R and 7103-1-05), for all criteria pollutants (particulate, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC) are based on the rated capacities and rated hourly fuel consumption of each boiler, respectively. Therefore, if the boilers are operated at, or below, the rated capacity, the hourly emission limits will not be exceeded. The following equation and emissions factors will be used to determine actual emissions from the operation of each Boilers 1R, 2R and 5:

$$E = F \times N$$

Where: E = emission rate (lb/time period)  
F = pollutant specific emission factor, provided below  
N = fuel consumed (million ft<sup>3</sup>/time period for natural gas and ton/time period for coal)

**Natural Gas Emission Factors – Boilers 1R, 2R and 5**

<b>Pollutant</b>	<b>Emission Factor</b>	<b>Source of DEQ Factor</b>
PM (lbs/mmcf) <sup>a</sup>	7.60	AP-42 Table 1.4-2
PM10 (lbs/mmcf) <sup>a</sup>	7.60	AP-42 Table 1.4-2
SO <sub>2</sub> (lbs/mmcf)	0.60	AP-42 Table 1.4-2
NO <sub>x</sub> (lbs/mmcf)	36.0	0.036 lb/MMBtu BACT determination for LNB/FGR converted using minimum heat value
CO (lbs/mmcf)	84	AP-42 Table 1.4-1
Lead (lbs/mmcf)	5.E-04	AP-42 Table 1.4-2
VOC (lbs/mmcf)	5.5	AP-42 Table 1.4-2

<sup>(a)</sup> PM/PM10 emission factors include total condensable and filterable particulate matter

**Coal Emission Factors – Boilers 1R, 2R and 5**

<b>Pollutant</b>	<b>Emission Factor</b>	<b>Source of DEQ Factor</b>
PM (lbs/ton) <sup>a</sup>	0.48	0.02 lb/MMBTU BACT determination converted using minimum heat value
PM10 (lbs/ton) <sup>a</sup>	0.48	0.02 lb/MMBTU BACT determination converted using minimum heat value
SO <sub>2</sub> (lbs/ton)	4.26	AP-42 (38 *S) at Max Sulfur Indicated with BACT of 92 percent control efficiency
NO <sub>x</sub> (lbs/ton)	8.33	0.35 lb/MMBTU BACT determination converted using minimum heat value
CO (lbs/ton)	5	AP-42 Table 1.1-3
Lead (lbs/ton)	4.20E-04	AP-42 Table 1.1-18
VOC (lbs/ton)	0.05	AP-42 Table 1.1-19

<sup>(a)</sup> PM/PM10 emission factors are for filterable particulate matter only.

<sup>(b)</sup> SO<sub>2</sub> emission factor is based on maximum allowable sulfur content of coal burned.

When firing natural gas, the hourly emission limits for particulate, SO<sub>2</sub>, CO and VOC are based on AP-42, Chapter 1.4, *Natural Gas Combustion* (September 1998); the NO<sub>x</sub> emission limits for each boiler are calculated using a BACT determination using the minimum heat value. The BACT-based NO<sub>x</sub> emission factor of 0.036 lbs/MMBTU also serves as a short-term limit for the NO<sub>x</sub> emissions in addition to the pounds per hour limit for Boilers 1R and 2R.

Hourly emissions of criteria pollutants (SO<sub>2</sub>, CO and VOC) when firing coal are based on the emission factors from AP-42, Chapter 1.1, *Bituminous and Sub bituminous Coal Combustion* (September 1998). Particulate and NO<sub>x</sub> emissions, when firing coal, are calculated using a BACT determination using the minimum heat value. The short term emission limit for particulate matter is 0.02 lbs/MMBTU, which is more stringent than the PM and PM-10 emission factor contained in AP-42, Chapter 1.1. The short-term emission limit for NO<sub>x</sub> is 0.35 lb/MMBTU, which is more stringent than the emission factor contained in AP-42, Chapter 1.1. Short-term emission limits for SO<sub>2</sub> are based on the BACT determination requiring 92 percent control efficiency and a maximum sulfur content of 1.4 percent. Calculations showing the emission factors and emission calculations are available in Attachment C.

Continuous Emissions Monitoring Systems (CEMS) have been installed for Boilers 1R, 2R and 5 to monitor emissions of NO<sub>x</sub> and SO<sub>2</sub>. A Continuous Opacity Monitor (COM) has been installed on the stack shared by the five boilers (Ref. 7103-1), to measure and record opacity from the stack.

#### Boilers 3R and 4R – Short-Term Emissions

Boilers 3R and 4R do not meet the criteria for 40 CFR Part 64 Compliance Assurance Monitoring (CAM) applicability (40 CFR §64.2(a)(3)) because pre-control PTE for all criteria pollutants for these boilers are under the Title V major threshold of 100 tons per year. Boilers 3R and 4R (Ref. 7103-1-03R and 7103-1-04R, respectively) are distillate oil and natural gas fired boilers; each boiler uses a flue-gas recirculation (FGR) system and a low NO<sub>x</sub> burner to reduce NO<sub>x</sub> emissions while burning natural gas. However, the pre-control emissions of NO<sub>x</sub> from both Boilers 3R and 4R are below the Title V major threshold of 100 tons per year. Additionally, the pre-control individual HAP emissions are less than 10 tpy, and total HAP emissions are less than 25 tpy. CAM is not applicable to Boilers 3R and 4R.

The hourly emission limits established for Boilers 3R and 4R (Ref. 7103-1-03R and 7103-1-04R), for all criteria pollutants (particulate, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC) are based on the rated capacities and rated hourly fuel consumption of each boiler. The following equation and emissions factors will be used to determine actual emissions from the operation of each of Boilers 3R and 4R:

$$E = F \times N$$

Where: E = emission rate (lb/time period)  
 F = pollutant specific emission factor, provided below  
 N = fuel consumed (million ft<sup>3</sup>/time period for natural gas and 1000 gal/time period for distillate oil)

#### **Natural Gas Emission Factors – Boilers 3R and 4R**

<b>Pollutant</b>	<b>Emission Factor</b>	<b>Source of DEQ Factor</b>
PM (lbs/mmcuft) <sup>a</sup>	7.6	AP-42 Table 1.4-2
PM10 (lbs/mmcuft) <sup>a</sup>	7.6	AP-42 Table 1.4-2
NO <sub>x</sub> (lbs/mmcuft)	30.0	0.03 lb/MMBtu BACT determination for LNB converted using minimum heat value
CO (lbs/mmcuft)	84	AP-42 Table 1.4-1
SO <sub>2</sub> (lbs/mmcuft)	0.6	AP-42 Table 1.4-2
Lead (lbs/mmcuft)	5.E-04	AP-42 Table 1.4-2
VOC (lbs/mmcuft)	5.5	AP-42 Table 1.4-2

<sup>(a)</sup> PM/PM10 emission factors include total condensable and filterable particulate matter

### Distillate Oil Emission Factors – Boilers 3R and 4R

Pollutant	Emission Factor	Source of DEQ Factor
Filterable PM (lbs/1000gal)	2	AP-42 Table 1.3-1
Filterable PM10 (lbs/1000gal)	1.08	AP-42 Table 1.3-7
Condensable PM/PM10 (lbs/1000gal)	1.3	AP-42 Table 1.3-2
SO <sub>2</sub> (lbs/1000gal) <sup>a</sup>	7.1	AP-42 (142*S) at Max Allowable Sulfur
NO <sub>x</sub> (lbs/1000gal)	24	AP-42 Table 1.3-1
CO (lbs/1000gal)	5	AP-42 Table 1.3-1
Lead (lbs/1000gal)	1.22E-03	AP-42 Table 1.3-10 converted from 9 lb/10 <sup>12</sup> btu using average heat content
VOC (lbs/1000gal)	0.2	AP-42 Table 1.3-3

<sup>(a)</sup> SO<sub>2</sub> emission factor is based on the maximum allowable sulfur content of oil burned.

When firing natural gas, hourly emissions for particulate, SO<sub>2</sub>, CO and VOC are based on AP-42, Chapter 1.4, *Natural Gas Combustion* (September 1998); NO<sub>x</sub> emissions for each boiler are calculated using a BACT determination using the minimum heat value. The BACT-based NO<sub>x</sub> emission factor of 0.03 lbs/MMBTU also serves as a short-term limit for the NO<sub>x</sub> emissions in addition to the pounds per hour limit. Hourly emissions of criteria pollutants (particulate, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC) when firing on distillate oil are based on the emission factors from AP-42, Chapter 1.3, *Fuel Oil Combustion* (September 1998). Short-term emission limits for SO<sub>2</sub> are based on the maximum allowable sulfur content. Calculations showing the emission factors and emission calculations are available in Attachment C.

### Boilers 1R, 2R, 3R, 4R and 5 – Annual Emissions

Annual emissions for the boilers are calculated based on the combined maximum fuel throughput contained in the NSR permit. Condition 23 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) limits the total combined fuel throughput for all boilers; the facility is limited to 50,500 tons of coal per year, 3,240 x 10<sup>6</sup> SCF of natural gas per year, and 1,267 x 10<sup>3</sup> gallons of distillate oil per year. Calculations showing the emission factors and emission calculations are available in Attachment C.

### Boilers 1R, 2R and 5 – Continuous Emission Monitoring System (CEMS) – SO<sub>2</sub>

Emissions of SO<sub>2</sub> in Boilers 1R, 2R and 5 while burning coal are controlled through the use of individual semi-dry scrubbers. Condition 39 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) requires the installation, calibration, maintenance and operation of a CEMS for measuring SO<sub>2</sub> concentrations and either oxygen or carbon dioxide concentrations at both the inlet and outlet of the sulfur dioxide control devices on Boilers 1R, 2R and 5. Conditions 40, 41, 42, 43, 44, 45 and 46 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) provide the recordkeeping and monitoring requirements necessary to show compliance with the short-term coal-fired SO<sub>2</sub> emission limits for each of the Boilers 1R, 2R and 5, and the requirements of 40 CFR 60 Subparts Db and Dc.

#### Boilers 1R, 2R, 3R, 4R and 5 – Continuous Emission Monitoring System (CEMS) – NO<sub>x</sub>

Boilers 1R, 2R and 5 are coal and natural-gas fired boilers, and Boilers 3R and 4R are distillate oil and natural-gas fired boilers; each boiler is equipped with a low-NO<sub>x</sub> burner. Condition 47 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) requires the installation, calibration, maintenance and operation of a CEMS for measuring NO<sub>x</sub> emissions from Boilers 1R, 2R, 3R, 4R and 5. Conditions 48 and 49 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) provide the monitoring, recordkeeping and operational requirements necessary to show compliance with the short-term NO<sub>x</sub> limits for each of the five boilers, and the requirements of the respective NSPS, 40 CFR 60 Subparts Dc or Db.

#### Boilers 1R, 2R, 3R, 4R and 5 – Continuous Opacity Monitoring System (COMS)

The five boilers (Ref. 7103-1-01R, 7103-1-02R, 7103-1-03R, 7103-1-04R and 7103-1-05) all vent to a common stack (Ref. 7103-1). Condition 51 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) requires the installation of a continuous opacity monitor to measure and record opacity from the Main Heating Plant stack (Ref. 7103-1). Conditions 52, 53 and 54 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) provide the monitoring, recordkeeping, and operational requirements for the COMS.

#### Boilers 1R, 2R, 3R, 4R and 5 – CEMS / COMS – Spans

Condition 50 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) provides the CEMS and COMS span values.

#### Recordkeeping – General

The permittee is required to obtain certification from the fuel supplier with each shipment of coal or distillate oil for the five boilers, as required in Condition 25 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10).

Condition 58 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) requires the permittee to maintain records of all emissions data and operating parameters necessary to demonstrate compliance with the NSR permit. Compliance with the emission limits for Boilers 1R, 2R, 3R, 4R and 5 is shown through: daily, monthly and annual throughput of fuel(s); fuel supplier certifications; logs of control device inspections; records of operator training; COMS and CEMS calibrations and calibration checks; results of all stack tests and visible emissions evaluations; daily records for each boiler showing emission calculations, calibration tests; logs of all fuel switches and coal start-ups for Boilers 1R, 2R and 5; and opacity data. Compliance with the lime silo emission limits is established through the retention of all visible emission evaluation results. The facility is required to keep the records on site, and available for inspection for the most recent five years.

### *Testing*

Equipment at the facility must be constructed to allow for emissions testing upon reasonable notice at any time. The facility is required to conduct stack tests, as provided in Condition 56 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10) for the following boilers and pollutants, while using the specified fuel:

<b>Emission Unit</b>	<b>Pollutant</b>	<b>Fuel</b>
Boilers 1R, 2R & 5	PM/PM-10 <sup>(1)</sup>	Coal
All Boilers	CO	Natural Gas, Distillate Oil, and Coal

<sup>(1)</sup> All particulate matter shall be considered PM-10; Condensables shall be tested separately for each boiler.

The stack tests are to be conducted no less frequently than once each five-year period, and upon request by the DEQ. The tests shall be conducted to determine compliance with the applicable emission limits contained in the Conditions 4, 5, 28, 29 and 30 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10). In addition to the required Continuous Opacity Monitoring System, the permittee is also required to conduct additional visible emissions evaluations (VEE) to demonstrate compliance with the visible emission limits upon request by the DEQ, as established in Conditions 34 and 36 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10), in accordance with Condition 57 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10).

### *Compliance Assurance Monitoring (CAM)*

The coal boilers, Boilers 1R, 2R, and 5, are subject to CAM. Section 64.2 of the CAM rule (40 CFR 64) specifies the criteria for making a CAM applicability determination. Each Boiler 1R, 2R and 5, have the potential to emit more than 100 tons per year of uncontrolled PM, NO<sub>x</sub> and SO<sub>2</sub> emissions. However, because the facility uses CEMS to provide continuous emissions monitoring for NO<sub>x</sub> and SO<sub>2</sub>, CAM is not applicable for these pollutants.

The eight conditions that are added to the CAM section of the Title V permit (Conditions III.B.25 – III.B.32) are new standard conditions that were added to DEQ's Title V boilerplate since the last renewal of this permit. A copy of the CAM plan is available as Attachment A to the permit and as Attachment E in the Statement of Basis.

### NO<sub>x</sub> CAM Applicability

Boilers 1R, 2R and 5 each have uncontrolled emissions of NO<sub>x</sub> greater than 100 tons per year and are equipped with over-fire air (OFA - an inherent boiler design, which is not applicable to CAM), as well as a flue-gas recirculation (FGR) and low-NO<sub>x</sub> burners to reduce NO<sub>x</sub> emissions. Although each boiler has uncontrolled emissions greater than 100 tons per year, is subject to an emission limitation, and has control device(s) to meet the limits, the boilers are not subject to CAM requirements for NO<sub>x</sub>.

Each boiler is equipped with CEMS to monitor emissions of NO<sub>x</sub> as required in Condition 47 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10); since the CEMS provide a continuous compliance determination method for the emission limitations,

emissions of NO<sub>x</sub> are exempt from CAM for the boilers (Ref. 7103-1-01R, 7103-1-02R, & 7103-1-05), in accordance with Chapter 9 of the Title V permitting manual and 40 CFR 64.2(b)(1)(vi).

#### PM/PM-10 CAM Applicability

Boilers 1R, 2R and 5 each have uncontrolled emissions of PM/PM-10 greater than 100 tons per year, and are each equipped with a baghouse system to reduce PM/PM-10 emissions. Therefore, since each boiler has uncontrolled emissions greater than 100 tons per year, is subject to an emission limitation, and has a control device to meet the limits, the baghouse system on each boiler is subject to CAM requirements. The CAM plan for the baghouse systems includes the following requirements:

#### *Rationale for Selection of Performance Indicators*

The baghouse differential pressure drop has been selected as the first indicator because it is indicative of the baghouse operation. Each baghouse is required to be equipped with a device to continuously measure the differential pressure in accordance with the NSR permit. Differential pressure across the baghouse has a direct correlation to the performance of the baghouse, and consequently PM emissions. Differential pressure across the baghouse is appropriate because baghouses are designed to operate at a relatively constant pressure drop. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop can indicate that the cleaning cycle is not frequent enough, cleaning equipment is damaged, the bags are becoming inefficient, or the airflow has increased. A decrease in pressure drop may indicate broken or loose bags (but this is also indicated by the presence of visible emissions, indicator No. 2). A pressure drop across the baghouse also serves to indicate that there is airflow through the control device.

The second indicator selected was bag condition. The facility performs annual inspections of the baghouse system as recommended by the manufacturer; bag samples are evaluated for deterioration. An excursion is defined as a failure to perform the annual inspection and bag replacement as recommended by the manufacturer's specifications. Excursions trigger an inspection, corrective action and reporting requirements.

#### *Rationale for Selection of Indicator Ranges*

An excursion is defined as any operating condition where the differential pressure is outside the manufacturer's recommended range of 3 to 10 inches of water. An excursion will trigger an investigation into the cause, corrective action, and reporting requirements. All excursions will be documented and reported. A pressure drop below 3 inches of water may indicate bypass or bag rupture. A pressure drop above the indicator range means that bag(s) need replacement or that the bag cleaning function is not working properly. Condition III.B.29 requires investigation and correction of control device operation upon the detection of an excursion or exceedance. The QIP threshold for this indicator is no more than five percent of the operating time outside of the indicator range in any semi-annual reporting period.

### SO<sub>2</sub> CAM Applicability

Boilers 1R, 2R and 5 each have uncontrolled emissions of SO<sub>2</sub> greater than 100 tons per year, and are each equipped with a semi-dry scrubber to reduce SO<sub>2</sub> emissions. Although each boiler has uncontrolled emissions greater than 100 tons per year, is subject to an emission limitation, and has control device(s) to meet the limits, the boilers are not subject to CAM requirements for SO<sub>2</sub>.

Each boiler is equipped with CEMS to monitor emissions of SO<sub>2</sub> as required in Condition 39 of the NSR permit (dated 7/5/05, as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10); since the CEMS provide a continuous compliance determination method for the emission limitations, emissions of SO<sub>2</sub> are exempt from CAM for the boilers (Ref. 7103-1-01R, 7103-1-02R, & 7103-1-05), in accordance with Chapter 9 of the Title V permitting manual and 40 CFR 64.2(b)(1)(vi).

### *Reporting*

Condition 55 of the NSR permit requires the facility to submit semi-annual reports for Boilers 1R, 3R, 4R and 5 (Ref. 7103-1-01R, 7103-1-03R, 7103-1-04R & 7103-1-05) as part of the respective New Source Performance Standards (NSPS). Details regarding the semi-annual reporting requirements are provided in the Condition. Semi-annual reports are not required for Boiler 2R (Ref. 7103-1-02R) because it is not subject to NSPS.

The initial notifications for the design heat input capacities for the emission units, as well as the annual capacity factor at which the owner/operator anticipates operating, provided in Condition 59, have already been submitted. This condition has been fulfilled and is therefore not included in the Title V permit.

Condition 63 and 64 of the NSR permit establishes that the facility must notify DEQ of malfunctions of the affected facility or related air pollution control equipment, and maintain records of any bypass, malfunction, shutdown or failure of the facility, that may cause excess emissions for more than one hour; these conditions have not been incorporated in this section of the Title V permit, since they apply facility-wide and are provided in the General Conditions in XI.E and XI.F.

The CAM reporting requirement (Condition III.D.2) has been added to the permit. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the DEQ and, if necessary, submit a proposed modification to this permit to address the necessary monitoring changes.



## **Coal and Ash Handling**

### *Limitations*

The following limitations are state BACT and NSPS, Subpart Y requirements from the state minor NSR permit issued 7/23/07, as amended 4/9/09. Please note that the condition numbers are from the 2009 amended NSR permit. A copy of this document is enclosed in Attachment B.

- |               |   |
|---------------|---|
| Condition 2:  | Particulate emissions from each coal silo (7103-CS1, 7103-CS2, 7103-CS3 and 7103-CS4) and bunker (B1, B2, and B5) shall be controlled by cartridge filters.               |
| Condition 3:  | Particulate matter emissions from the fly ash silo (FAS) and bottom ash silo (BAS) shall be controlled by fabric filters.   |
| Condition 4:  | Particulate emissions from the crusher (CR1) and crusher screen (CCS1) shall be controlled by cartridge filters.  |
| Condition 5:  | Particulate emissions from coal unloading of railcars (GS1-8, H1A, H1B, H2A, H2B, H3A, H3B, H4A, and H4B) will be controlled by enclosing the area with a metal building. |
| Condition 6:  | Fugitive dust emission controls are specified for the coal and ash handling equipment operations.   |
| Condition 7:  | All coal bunkers (B1, B2, and B5) and the coal conveying equipment (C1-12, E-14, CCS1 and CR1) shall be completely enclosed.  |
| Condition 8:  | The coal unloading by truck shall only occur during emergencies. Emergency truck unloading will only take place when the normal rail unloading is not operational.        |
| Condition 14: | The throughput of coal shall not exceed 50,500 tons per year, calculated monthly as the sum of each consecutive 12-month period.  |
| Condition 15: | Except where more restrictive, the NSPS coal and ash equipment shall be operated in compliance with the requirements of 40 CFR 60, Subpart Y.                             |
| Condition 16: | Particulate emission limits from the operation of the coal and ash handling equipment have been incorporated into the permit.   |

Condition 17: Visible emissions from each filter stack and coal handling equipment operation shall not exceed 10 percent opacity as determined by EPA Method 9.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-80, New Source Standard for Visible Emissions

9 VAC 5-50-80 was determined to be applicable to the coal handling emission units because documentation of construction dates for some units were unavailable, however Condition 17 (Condition IV.A.11 of the Title V Permit) establishes a more stringent visible emission limit of 10 percent opacity.

*Monitoring and Recordkeeping*

The following monitoring and recordkeeping requirements are from the state minor NSR permit issued 7/23/07, as amended 4/9/09. Please note that the condition numbers are from the 2009 amended NSR permit. A copy of this document is enclosed in Attachment B.

- Condition 9: Each of the cartridge and fabric filters shall be equipped with a device to continuously measure the differential pressure across the filters. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when each filter is operating.
- Condition 10: To ensure good performance, the devices used to continuously measure the differential pressure across each cartridge and fabric filter shall be observed by the permittee not less than once per week of operation. The permittee shall continuously record measurements from the control equipment monitoring devices. If during the inspection, the differential pressure is not within the manufacturer's recommended range, timely corrective action shall be taken such that the filter resumes proper operation.
- Condition 11: The permittee shall conduct a weekly visible emissions inspection of each cartridge and fabric filter exhaust. All visible emissions inspections shall be performed when the equipment is operating.
- Condition 12: The permittee shall perform inspection and maintenance activities for the coal handling equipment operations, as listed in Condition 12.a. and 12.b. of the NSR permit.

Condition 19: The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the DEQ. The condition lists specific recordkeeping requirements, as discussed below.

The facility has been inspected and all of these control measures have been constructed properly. Therefore, no additional monitoring is necessary aside from the general requirement to visually inspect coal handling operations for the presence of visible emissions.

Conditions IV.A.9 contains coal throughput limit for the facility; Condition IV.A.10 contains emission limits for coal handling operations. In order to demonstrate compliance with these limitations, the permit requires the facility to maintain records of: the monthly and annual throughput of coal; logs of filter inspections and visible emission inspections; records of operator training; and results of all visible emission evaluations.

Particulate emissions from the railcar coal unloading (including hoppers H1A, H1B, H2A, H2B, H3A, H3B, H4A and H4B) are calculated using Equation 1 from AP-42 Chapter 13.2.4, provided below:

$$E = k(0.0032) * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where:

E = emission factor  
 k = particle size multiplier (dimensionless)  
 U = mean wind speed (miles per hour)  
 M = material moisture content

The particle size multiplier (k) varies with aerodynamic particle size ranges. Emission factors for PM and PM-10, calculated using the equation above, were used to determine hourly emissions from the railcar coal unloading (including hoppers H1A, H1B, H2A, H2B, H3A, H3B, H4A and H4B).

	PM	PM-10
k (particle size multiplier)	0.74	0.35
U (mean wind speed, mph)	8	8
M (coal moisture content, %)	6	6
Emission Factor (lbs/ton coal)	9.37E-04	4.43E-04

Particulate emissions (PM and PM-10) from the coal silos (7103-CS1, 7103-CS2, 7103-CS3 and 7103-CS4) and the ash silos (FAS and BAS) were each calculated using the individual silo fan capacity, the grain loading (gr/ft<sup>3</sup>) determined for each silo, and the estimated filter control efficiency of 99 percent.

Particulate emissions (PM and PM-10) from the coal handling equipment are primarily based on emission factors derived from AP-42, Chapter 11.19.2 *Crushed Stone Processing and Pulverized Mineral Processing*. Emissions from the screens, conveyors, crusher screens, and crusher are all based on emission factors from AP-42, Chapter 11.19.2; emissions from the coal storage bunkers are calculated using the equation using Equation 1 from AP-42 Chapter 13.2.4 (provided above).

<b>Equipment</b>	<b>Rated Capacity (tons/hr)</b>	<b>Emission Factor (lb/ton coal)</b>	<b>Control Device / Control Efficiency</b>
8 Grizzly Screens (GS1-8)	400 (combined)	0.025	Closed Building / 95%
6 Conveyors (C7, C8, C9, C10, C11, and C12)	20 (each)	0.003	Complete Enclosure / 95%
2 Conveyors (C1 and C3)	40 (each)	0.003	Complete Enclosure / 95%
4 Conveyors (C2, C4, C5, and C6)	80 (each)	0.003	Complete Enclosure / 95%
2 Elevators (E1 and E2)	80 (each)	0.003	Complete Enclosure / 95%
2 Elevators (E3 and E4)	20 (each)	0.003	Complete Enclosure / 95%
3 Bunkers (B1, B2, and B5)	80 (each)	0.013	Cartridge Filters / 99%
1 Crusher Screen (CCS1)	80 (each)	0.025	Cartridge Filters / 99%
1 Crusher (CR1)	25 (each)	0.0054	Cartridge Filters / 99%

Particulate emissions from the crusher screen (CCS1) and crusher (CR1) and from the three coal bunkers (B1, B2 and B5) are controlled by cartridge filters, each with a rated capacity of 99 percent. Particulate emissions from the screens (GS1-8), conveyors (C1-12) and elevators (E1-E4) are controlled through complete enclosure, which is assumed to have a control efficiency of 95 percent.

The hourly emission limits established for the coal handling equipment, for all criteria pollutants, are based on the rated capacities of the equipment, and the control efficiencies of the control devices, where applicable. Therefore if the equipment is operated at, or below, the rated capacity, the hourly emission limits will not be exceeded. Annual emissions for the coal handling and processing equipment are based on the annual coal throughput limit of 50,500 tons of coal per year, as established in Condition 14 of the NSR permit, dated 7/23/07, as amended 4/9/09. Controlled and uncontrolled emissions from the coal handling equipment, coal silos, and railcar coal unloading are provided in Attachment C.

Condition 19 of the NSR permit, dated 7/23/07, as amended 4/9/09 (Condition IV.B.5 of the Title V permit) establishes the recordkeeping requirements to demonstrate compliance with the limits established in the permit. The facility is required to keep records of: monthly and annual throughput of coal; weekly logs of each filter inspection; weekly logs of visible emission inspections for filter exhausts and coal handling operations; training and certification records for operators of the air pollution control equipment; and results of all visible emission evaluations. The facility is required to keep the records on site, and available for inspection for the most recent five years.

### *Testing*

The following testing requirements are from the state minor NSR permit issued 7/23/07, as amended 4/9/09. Please note that the condition numbers are from the 2009 amended NSR permit. A copy of this document is enclosed in Attachment B.

Condition 13: The coal and ash handling equipment shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods.

Condition 18: Upon request by the DEQ, the permittee shall conduct additional visible emissions evaluations (VEE) to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged with the DEQ.

The additional VEEs, which may be requested, must show compliance with the Visible Emission Limit of 10 percent, for each filter stack and coal handling equipment operation.

### *Reporting*

Condition 20 of the minor NSR permit (Condition IV.D.1 of the Title V Permit) requires UVA to furnish notification to DEQ of the intention to unload coal by truck at least 24 hours prior to the unloading event. This is required to demonstrate compliance with Condition 8 of the minor NSR permit (Condition IV.A.7 of the Title V permit) which states that coal unloading by truck shall be discontinued except during emergencies.

Condition 25 of the NSR permit establishes that the facility must notify DEQ of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour; this condition has not been included in this section of the Title V permit, since it applies facility-wide, and is provided in the General Conditions in XI.C and XI.F.

No other specific reporting has been included in the permit for the coal handling operations.

### *Streamlined Requirements*

9 VAC 5-40-900 (Existing Source Standard for Particulate Matter (ACQR 1-6)) has been streamlined because the permitted allowable emissions for coal handling operations are more stringent. Specifically, the process weight limit for particulate matter emissions from the coal handling equipment operations shall not exceed the pound per hour limit as determined by the following equation:

$$E = 55.0P^{0.11} - 40$$

Where:

E = emission rate in lbs/hr

P = process weight rate in tons/hr

The rated capacity of the coal handling equipment is 400 tons/hr; which assumes simultaneous operation of all eight grizzly screens, each at maximum capacity. Furthermore, the coal-fired boilers can process up to 12.71 tons per hour. Table IV provides estimated particulate emissions from the coal handling equipment using both the rated capacity of the equipment and the maximum hourly coal throughput from the boilers. In both cases, the permitted emissions in Conditions IV.A.9 are more stringent. The permitted PM emissions for coal and ash handling equipment are 1.17 pounds per hour; the permitted PM-10 emissions for the coal and ash handling equipment are 0.68 pounds per hour.

*Table IV. Process Weight Rule Particulate Emissions Limit from Coal Handling Equipment*

Emission Unit	Pollutant	Limitation (lbs/hr)
Coal Handling Equipment (400 tons/hour)	PM/PM-10	66.31
Coal Handling Equipment (12.71 tons/hour)		32.75

There are no other streamlined requirements for the coal handling operations.

### **Other Fuel Burning Equipment**

In addition to the Main Heat Plant (Section III of the Title V permit), the facility has multiple other fuel burning units to maintain daily operations of the University.

#### *Limitations*

The following limitations are specific to the four Unilux boilers located at 305 Massie Road (Ref. 5575-1-01 through 5575-1-04). The following limitations are state BACT and NSPS Subpart Dc requirements from the minor NSR permit issued on October 13, 2004, as amended March 22, 2010. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

- |               |   |
|---------------|---|
| Condition 3:  | The approved fuels for the four Unilux boilers are distillate oil and natural gas.  |
| Condition 6:  | The condition establishes fuel throughputs for natural gas and distillate oil for the Unilux boilers.   |
| Condition 7:  | Specifications for distillate oil to be burned in the four Unilux boilers. The maximum sulfur content per shipment is set at 0.2 percent.   |
| Condition 9:  | Boiler emissions shall be controlled through proper operation and maintenance. Boiler operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization with the manufacturer's operating instructions, at minimum.  |
| Condition 11: | The condition establishes hourly emission limits for each of the Unilux boilers.  |
| Condition 12: | The condition establishes total annual emission limits for the four Unilux boilers combined.  |
| Condition 14: | The condition establishes a visible emissions limit from the shared boiler stack (Ref. 5575-1).   |
| Condition 15: | The boilers are subject to the New Source Performance Standards in 40 CFR 60, Subpart Dc. This permit condition establishes that, except where more restrictive, the NSPS Unilux boilers shall be operated in compliance with the requirements of 40 CFR 60, Subpart Dc. Additional boilers subject to the NSPS, have been streamlined with this condition. |

The Unilux boilers located at 305 Massie Road (Ref. 5575-1-01 through 5575-1-04) are

natural gas and distillate oil boilers. The Unilux boilers located at 305 Massie Road (Ref. 5575-1-01 through 5575-1-04) do not meet the criteria for 40 CFR Part 64 Compliance Assurance Monitoring (CAM) applicability (40 CFR §64.2(a)(3)) because pre-control PTE for all criteria pollutants for all boilers (Ref. 5575-1-01 through 5575-1-04) are under the Title V major threshold of 100 tons per year. Each boiler uses low NO<sub>x</sub> burners to reduce NO<sub>x</sub> emissions while burning natural gas. However, the pre-control emissions of NO<sub>x</sub> from each boiler (Ref. 5575-1-01 through 5575-1-04) are below the Title V major threshold of 100 tons per year; therefore CAM is not applicable to the Unilux boilers (Ref. 5575-1-01 through 5575-1-04). Condition 9 of the NSR permit has been expanded to include all boilers covered under Section V of the Title V permit.

The following limitations are specific to the 10.73 MMBtu/hr boiler located at University Hall on Massie Road (Ref. 5577-1-01). The following limitations are state BACT and NSPS Subpart Dc requirements from the minor NSR permit issued on March 29, 1990 as amended November 14, 1990. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

- |               |  |
|---------------|--|
| Condition 4:  | The 10.73 MMBtu/hr boiler (Ref. 5577-1-01) shall consume no more than 10,460 standard cubic feet per hour and no more than 30 million standard cubic feet per year of natural gas.                                       |
| Condition 5:  | The 10.73 MMBtu/hr boiler (Ref. 5577-1-01) shall consume no more than 74.5 gallons per hour and 21,600 gallons per year of distillate oil.   |
| Condition 6:  | Hourly and annual emission limits for criteria pollutants from the operation of the 10.73 MMBtu/hr boiler (Ref. 5577-1-01) when firing natural gas.  |
| Condition 7:  | Hourly and annual emission limits for criteria pollutants from the operation of the 10.73 MMBtu/hr boiler (Ref. 5577-1-01) when firing distillate oil.   |
| Condition 8:  | Visible emissions from the 10.73 MMBtu/hr boiler (Ref. 5577-1-01) shall not exceed 10 percent opacity.   |
| Condition 10: | The approved fuels for the 10.73 MMBtu/hr boiler (Ref. 5577-1-01) are natural gas and distillate oil. A change in fuels may require a permit to modify and operate.  |
| Condition 11: | Specifications for distillate oil to be burned in the 10.73 MMBtu/hr boiler (Ref. 5577-1-01). The maximum sulfur content per shipment is 0.5 percent; the maximum annual weighted average sulfur content is 0.2 percent. |



The 10.73 MMBtu/hr boiler located at University Hall on Massie Road (Ref. 5575-1-01) is a natural gas and distillate oil boiler. The 10.73 MMBtu/hr boiler (Ref. 5577-1-01) does not meet the criteria for 40 CFR Part 64 Compliance Assurance Monitoring (CAM) applicability (40 CFR §64.2(a)(3)) because pre-control PTE for all criteria pollutants from the boiler (Ref. 5577-1-01) are under the Title V major threshold of 100 tons per year.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

- 9 VAC 5-40-900, Existing Source Standard for Particulate Matter (ACQR 1-6)
- 9 VAC 5-40-930, Existing Source Standard for Sulfur Dioxide (ACQR 1-6)
- 9 VAC 5-40-940, Existing Source Standard for Visible Emissions
- 9 VAC 5-50-80, New Source Standard for Visible Emissions

The four Unilux boilers (Ref. 5575-1-01 through 5575-1-04) and the 10.73 MMBtu/hr boiler (Ref. 5577-1-01) are each subject to more stringent standards in their respective NSR permits, as detailed above. However, in addition to the boilers listed above, the University has multiple significant fuel burning sources that are not contained in individual NSR permits. The fuel burning sources listed in the table below are subject to additional requirements under the Virginia Administrative Codes:

<b>Emission Unit</b>	<b>Rated Capacity</b>	<b>Fuel(s)</b>
Cleaver Brooks Model # CB 200-40 (Ref. 0580-2-01 Carruther's Hall)	1.7 MMBtu/hr	Distillate Oil Natural Gas
Weil-McLain Model # 788 (Ref. 0603-1-01 Faulkner House)	1.6 MMBtu/hr	Distillate Oil Natural Gas
NRC Model #9-47 (Ref. 1600-1-01 KCRC)	1.1 MMBtu/hr	Distillate Oil Natural Gas
Cleaver Brooks Model #CB 428-3 (Ref. 5576-1-01 U-Hall)	12.6 MMBtu/hr	Distillate Oil Natural Gas
Cleaver Brooks Model #CB 428-3 (Ref. 5576-1-02 U-Hall)	12.6 MMBtu/hr	Distillate Oil Natural Gas
FLO-KNTRL #1 (Ref. 7533-1-01 North Grounds HP)	15.0 MMBtu/hr	Distillate Oil Natural Gas
FLO-KNTRL #2 (Ref. 7533-1-02 North Grounds HP)	15.0 MMBtu/hr	Distillate Oil Natural Gas

The existing source standards apply to the significant fuel burning units listed in the table above. The following conditions in the Title V permit were established pursuant to these Codes; Condition numbers refer to those contained in the Title V permit:

Condition V.A.11: Existing Source Standards for Particulate Matter and Sulfur Dioxide for fuel burning equipment.

Condition V.A.14: Visible emissions from fuel burning equipment constructed

after March 17, 1972 (Ref. 0603-1-01, 1600-1-01, 1760-2-01, 1760-2-02, 7533-1-01 and 7533-1-02) shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity. This condition is established in accordance with Rule 5-1 (9 VAC 5-50-80).

Condition V.A.15: Visible emissions from fuel burning equipment constructed prior to March 17, 1972 (Ref. 0580-2-01, 5576-1-01 and 5576-1-02) shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 60 percent opacity. This condition is established in accordance with Rule 4-8 (9 VAC 5-40-940).

The following conditions were established pursuant to 9 VAC 5-80-110 in order to provide assurance that the aforementioned emission standards for the fuel burning equipment are met. Condition numbers refer to those contained in the Title V permit.

Condition V.A.1: Approved fuel usage for boilers.

Condition V.A.5: Specifications for distillate oil to be burned in fuel burning equipment.

Condition V.A.6: Boiler emissions shall be controlled by proper operation and maintenance. Boiler operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization with the manufacturer's operating instructions, at minimum.

Condition V.A.17: The permittee shall take measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices, and process equipment which affect such emissions.

The fuel burning sources listed in the table above, do not meet the criteria for 40 CFR Part 64 Compliance Assurance Monitoring (CAM) applicability (40 CFR §64.2(a)(3)) because pre-control PTE for all criteria pollutants from each of the boilers are under the Title V major threshold of 100 tons per year.

#### *Monitoring and Recordkeeping*

The following monitoring and recordkeeping requirements refer to the four Unilux boilers located at 305 Massie Road (Ref. 5575-1-01 through 5575-1-04):

Condition 9: The facility must keep records of the required boiler operation and maintenance training, including a statement of time, place

and nature of the training provided. In addition, the facility must have available good written operating procedures and a maintenance schedule for the boilers. The procedures shall be based on the manufacturer's recommendations, at a minimum. All records required shall be kept on site and be made available for inspection by the DEQ.

Condition 8: To show compliance with the fuel specifications and fuel throughput limitations, the facility is required to obtain fuel certifications for each shipment of distillate oil. The condition outlines the requirements of the fuel certification.

Condition 18: In order to demonstrate compliance with the emission limits contained in the permit, the facility is required to keep records of: the daily, monthly and annual natural gas and distillate oil usage for each boiler, as well as the boilers combined; the annual PM, PM-10, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emissions from each boiler; all fuel supplier certifications; written operating procedures and maintenance and training records; and the results of all visible emissions evaluations.

The hourly emission limits established for the Unilux boilers (Ref. 5575-1-01 through 5575-1-04), for all criteria pollutants (particulate, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC) are based on the rated capacities and rated hourly fuel consumption of each boiler. The following equation and emissions factors will be used to determine actual emissions from the operation of each the Unilux boilers (Ref. 5575-1-01 through 5575-1-04):

$$E = F \times N$$

Where: E = emission rate (lb/time period)  
F = pollutant specific emission factor, provided below  
N = fuel consumed (million ft<sup>3</sup>/time period for natural gas and 1000 gal/time period for distillate oil)

**Natural Gas Emission Factors – Unilux boilers (Ref. 5575-1-01 through 5575-1-04)**

Pollutant	Emission Factor	Source of DEQ Factor
PM (lbs/mmcf) <sup>a</sup>	7.6	AP-42 Table 1.4-2
PM10 (lbs/mmcf) <sup>a</sup>	7.6	AP-42 Table 1.4-2
SO <sub>2</sub> (lbs/mmcf)	0.6	AP-42 Table 1.4-2
NO <sub>x</sub> (lbs/mmcf)	37.2	Converted from low NO <sub>x</sub> burners rated at 0.031 lbs/MMBTU (natural gas) with 20% safety factor
CO (lbs/mmcf)	84	AP-42 Table 1.4-1
VOC (lbs/mmcf)	5.5	AP-42 Table 1.4-2

<sup>(a)</sup> PM/PM10 emission factors include total condensable and filterable particulate matter

**Distillate Oil Emission Factors – Unilux boilers (Ref. 5575-1-01 through 5575-1-04)**

Pollutant	Emission Factor	Source of DEQ Factor
PM (lbs/1000gal) <sup>b</sup>	3.3	AP-42 Table 1.3-1 (filterable) and AP-42 Table 1.3-2 (condensable)
PM10 (lbs/1000gal) <sup>b</sup>	2.38	AP-42 Table 1.3-2 (filterable) and AP-42 Table 1.3-7 (condensable)
SO <sub>2</sub> (lbs/1000gal) <sup>a</sup>	28.4	AP-42 Table 1.3-1 at Max Sulfur Indicated
NO <sub>x</sub> (lbs/1000gal)	12.264	Converted from low NO <sub>x</sub> burners rated at 0.073 lbs/MMBTU (distillate oil) with 20% safety factor
CO (lbs/1000gal)	5	AP-42 Table 1.3-1
VOC (lbs/1000gal)	0.34	AP-42 Table 1.3-3

<sup>(a)</sup> SO<sub>2</sub> emission factor is based on average sulfur content of oil burned.

<sup>(b)</sup> PM/PM10 emission factors include total condensable and filterable particulate matter

When firing natural gas, hourly emissions for particulate, SO<sub>2</sub>, CO and VOC are based on AP-42, Chapter 1.4, *Natural Gas Combustion* (September 1998). Hourly emissions of criteria pollutants, (particulate, SO<sub>2</sub>, CO and VOC) when firing on distillate oil, are based on the emission factors from AP-42, Chapter 1.3, *Fuel Oil Combustion* (September 1998). Short-term emission limits for SO<sub>2</sub> are based on the maximum allowable sulfur content of 0.2 percent, as established in Condition 7 of the 10/13/04 NSR permit, as amended 3/22/10. The boilers are designed with low NO<sub>x</sub> burners rated at 0.031 lbs/MMBTU (natural gas) and 0.073 lbs/MMBTU (distillate oil); the 20 percent safety factor added to these factors when calculating NO<sub>x</sub> emissions from the boilers accounts for variation in the operation, in accordance with DEQ general practice. Calculations showing the emission factors and emission calculations are available in Attachment C.

Annual emissions for the boilers are calculated based on the combined maximum fuel throughput contained in the NSR permit. Condition 6 of the NSR permit (dated 10/13/04, as amended 3/22/10) limits the total combined fuel throughput for all boilers. The facility is limited to 450,000 gallons of distillate oil per year and 300 x 10<sup>6</sup> SCF of natural gas per year. Calculations showing the emission factors and emission calculations are available in Attachment C. Recordkeeping demonstrating compliance with the fuel throughput limits provides reasonable assurance of compliance with the annual criteria pollutant emission limits, satisfying the periodic monitoring requirement. The facility will also be required to keep records of the DEQ-approved, pollutant-specific emission factors and the equations for calculating emissions.

The following monitoring and recordkeeping requirements refer to the 10.73 MMBtu/hr boiler located at University Hall on Massie Road (Ref. 5577-1-01):

Condition 11: The facility must keep records of all oil shipments purchased indicating the sulfur content per shipment. The records must be available for inspection, and must be current for the most recent three years.

Condition 12: The facility must retain records of all emission data and operating parameters required by the terms of the NSR permit.

Conditions V.A.9 and V.A.10 contain annual criteria pollutant emission limits for the 10.73 MMBTU/hr boiler (Ref. 5577-1-01) when firing natural gas and distillate oil, respectively. These limits are based on natural gas and distillate oil emission factors and the hourly and annual throughput limits; the boiler shall consume no more than 10,460 cubic feet of natural gas per hour and no more than 30 million standard cubic feet of natural gas per year. Additionally, the boiler may consume no more than 74.5 gallons of distillate oil per hour and no more than 10,460 gallons of distillate oil per year established in Condition V.A.3 and V.A.4. Recordkeeping demonstrating compliance with the fuel throughput limits provides reasonable assurance of compliance with the hourly and annual criteria pollutant emission limits, satisfying the periodic monitoring requirement.

The hourly emissions established for the 10.73 MMBTU/hr boiler (Ref. 5577-1-01), for all criteria pollutants (particulate, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC) are based on the rated capacities, and rated hourly fuel consumption of the boiler. In accordance with DEQ policy, emissions less than 0.5 tons/yr are not included in the NSR permit; therefore only emissions of NO<sub>x</sub> and CO, while burning natural gas, and emissions of SO<sub>2</sub>, NO<sub>x</sub> and CO, while burning distillate oil, are provided in the NSR permit. Calculations are provided in Attachment C. The following equation and emissions factors will be used to determine actual emissions from the operation of the 10.73 MMBTU/hr boiler (Ref. 5577-1-01); emission factors are taken from AP-42, Chapters 1.3 and 1.4 from the 4<sup>th</sup> edition, supplement A:

$$E = F \times N$$

Where: E = emission rate (lb/time period)  
F = pollutant specific emission factor, provided below  
N = fuel consumed (million ft<sup>3</sup>/time period for natural gas and 1000 gal/time period for distillate oil)

**Natural Gas Emission Factors – 10.73 MMBTU/hr Boiler (Ref. 5577-1-01)**

Pollutant	Emission Factor	Source of DEQ Factor
PM (lbs/mmcuft) <sup>a</sup>	3.0	AP-42, Chapters 1.4-1 (4 <sup>th</sup> Edition, supplement A)
PM10 (lbs/mmcuft) <sup>a</sup>	3.0	AP-42, Chapters 1.4-1 (4 <sup>th</sup> Edition, supplement A)
SO <sub>2</sub> (lbs/mmcuft)	0.6	AP-42, Chapters 1.4-1 (4 <sup>th</sup> Edition, supplement A)
NO <sub>x</sub> (lbs/mmcuft)	140	AP-42, Chapters 1.4-1 (4 <sup>th</sup> Edition, supplement A)
CO (lbs/mmcuft)	35	AP-42, Chapters 1.4-1 (4 <sup>th</sup> Edition, supplement A)
VOC (lbs/mmcuft)	2.8	AP-42, Chapters 1.4-1 (4 <sup>th</sup> Edition, supplement A)

<sup>(a)</sup> PM/PM10 emission factors include total condensable and filterable particulate matter

**Distillate Oil Emission Factors – 10.73 MMBTU/hr Boiler (Ref. 5577-1-01)**

<b>Pollutant</b>	<b>Emission Factor</b>	<b>Source of DEQ Factor</b>
PM (lbs/1000gal)	2.0	AP-42, Chapters 1.3-1 (4 <sup>th</sup> Edition, supplement A)
PM10 (lbs/1000gal)	1.08	AP-42, Chapters 1.3-1 (4 <sup>th</sup> Edition, supplement A)
SO <sub>2</sub> (lbs/1000gal)	28.72	AP-42, Chapters 1.3-1 (4 <sup>th</sup> Edition, supplement A) at Max Sulfur Indicated
NO <sub>x</sub> (lbs/1000gal)	20.0	AP-42, Chapters 1.3-1 (4 <sup>th</sup> Edition, supplement A)
CO (lbs/1000gal)	5.0	AP-42, Chapters 1.3-1 (4 <sup>th</sup> Edition, supplement A)
VOC (lbs/1000gal)	0.34	AP-42, Chapters 1.3-1 (4 <sup>th</sup> Edition, supplement A)

Condition V.B.3 requires the permittee to obtain fuel supplier certifications that specify the sulfur content of the fuel oil burned in the 10.73 MMBtu/hr boiler (Ref. 5577-1-01) to ensure compliance with the sulfur content limits established in Condition V.A.5. Furthermore, Condition V.A.1 lists the approved fuels for the boiler. These limitations provide additional assurance of compliance with the emission limits in Conditions V.A.9 and V.A.10.

Periodic monitoring necessary to ensure compliance with the visible emissions limits established in Conditions V.A.14 and V.A.15 consists of a monthly inspection of each boiler stack to determine the presence of visible emissions. If during the inspection, visible emissions are observed, an EPA Method 9 (40 CFR Part 60, Appendix A) visible emissions evaluation (VEE) shall be conducted. The VEE shall be conducted for a minimum period of six minutes. If any of the observations exceed the 20 percent opacity limit, the observation period shall continue until 60 minutes of observations have been completed. The facility shall record all inspection results. The condition allows the facility to reduce the visible emission inspections to once per quarter if no visible emissions are observed for 12 months. The facility has demonstrated that there have been no visible emissions from the listed boiler stacks over the past 12 months, and can therefore reduce the visible emission evaluations to once per quarter. The condition (Condition V.B.1.) remains in the permit in case visible emissions are observed during the quarterly emission inspections. Anytime the quarterly visible emissions inspections show visible emissions, or when requested by the DEQ, the monitoring frequency shall be increased to once per month for that stack.

The University has multiple significant fuel burning sources that are not contained in individual NSR permits. The fuel burning sources listed in the table below are subject to additional requirements under the Virginia Administrative Codes:

Emission Unit	Rated Capacity	Fuel(s)
Cleaver Brooks Model # CB 200-40 (Ref. 0580-2-01 Carruther's Hall)	1.7 MMBtu/hr	Distillate Oil Natural Gas
Weil-McLain Model # 788 (Ref. 0603-1-01 Faulkner House)	1.6 MMBtu/hr	Distillate Oil Natural Gas
NRC Model #9-47 (Ref. 1600-1-01 KCRC)	1.1 MMBtu/hr	Distillate Oil Natural Gas
Cleaver Brooks Model #CB 428-3 (Ref. 5576-1-01 U-Hall)	12.6 MMBtu/hr	Distillate Oil Natural Gas
Cleaver Brooks Model #CB 428-3 (Ref. 5576-1-02 U-Hall)	12.6 MMBtu/hr	Distillate Oil Natural Gas
FLO-KNTRL #1 (Ref. 7533-1-01 North Grounds HP)	15.0 MMBtu/hr	Distillate Oil Natural Gas
FLO-KNTRL #2 (Ref. 7533-1-02 North Grounds HP)	15.0 MMBtu/hr	Distillate Oil Natural Gas

Rule 4-8 of the Virginia regulations establishes emission standards for particulate matter from fuel burning equipment. The boilers listed above are subject to Rule 4-8 (9 VAC 5-40-880, et. seq.). The hourly PM emission limits are based on 9 VAC 5-40-900.A.1 (a) and (b) for Air Quality Control Region 4 (AQCR). Hourly emissions of PM for boilers with a total capacity less than 10 MMBtu/hr are calculated using the following equation:

$$E = F * O$$

Where:

- E = Emission rate (lb/time period)
- F = Pollutant specific emission factor (0.6 lbs of PM per MMBtu input)
- O = Rated capacity of the boiler in MMBtu

Hourly emissions of PM in the Title V permit, for boilers with a total capacity less than 10 MMBtu/hr, are established based on the maximum rated capacities of the boilers, in accordance with the equation above. If the boilers operate up to the maximum rated capacities the hourly emission limits will not be violated.

The PM emission factor for boilers with a heat input capacity greater than or equal to 10 MMBtu/hr, but less than 100 MMBtu/hr are calculated using the following equation, and then used in the previous equation:

$$F = 1.0906 * H^{-0.2594}$$

Where:

- F = PM Emission Factor (lb/MMBtu)
- H = total capacity, in MMBTU/hr

Hourly emissions of PM in the Title V permit, for boilers with a total capacity greater than 10 MMBtu/hr, but less than 100 MMBtu/hr, are established based on the maximum rated capacities of the boilers (in MMBtu/hr), in accordance with the equations above. If the boilers operate up to

the maximum rated capacities the hourly emission limits will not be violated.

The hourly SO<sub>2</sub> emission limits are based on the equation found in 9 VAC 5-40-930.A.1 for Air Quality Control Region 4 (AQCR), provided below:

$$S = 2.64 * K$$

Where:

S = allowable emission of sulfur dioxide expressed in pounds per hour

K = heat input at total capacity expressed in BTU x10<sup>6</sup> per hour

Hourly emissions of SO<sub>2</sub> in the Title V permit are established based on the maximum rated capacities of the boilers, in accordance with the equations above. If the boilers operate up to the maximum rated capacities the hourly emission limits will not be violated.

Compliance with the PM and SO<sub>2</sub> limits, calculated from the equations listed above is established through: proper operation and maintenance of the boilers; fuel certifications showing the sulfur content of the distillate oil; records of training for boiler operators; and records of operating procedures and maintenance schedules.

Conditions V.A.6 requires that emissions from each boiler and be controlled by proper operation and maintenance and that boiler operators be trained in the proper operation of the equipment. The requirement in Condition V.B.2 to maintain boiler operator training records and good operating instructions for the boilers provides reasonable assurance that the boilers will be operated and maintained properly by the facility. This satisfies the periodic monitoring requirement.

The boilers (Ref. 1760-2-01 and 1760-2-02) are subject to NSPS Subpart Dc; however, since they are each 10.2 MMBtu/hr natural-gas fired units, they are subject only to monitoring and recordkeeping requirements. Condition V.A.1 established the approved fuel; the recordkeeping requirement of Condition V.B.5.c establishes compliance with the NSPS Subpart Dc requirements to monitor fuel usage, found in §60.48c (g). The boilers (Ref. 1760-2-01 and 1760-2-02) are also subject to additional requirements under the Virginia Administrative Codes, specified above.

### *Testing*

Condition 9 of the March 29, 1990 permit is incorporated. Specifically, the facility is required to construct the facility so as to allow for emissions testing at any time using appropriate methods.

Condition 17 of the October 13, 2004 NSR permit, as amended March 22, 2010, requires the facility to conduct additional visible emissions evaluations on the boiler stack (Ref. 5575-1) at the DEQ's request, to demonstrate compliance with the visible emission limit contained in the permit.



### *Reporting*

The permittee shall submit fuel quality reports to the DEQ, within 30 days after the end of each semi-annual period, ending **June 30** and **December 31**, in accordance with the NSPS, Subpart Dc, and Condition 19 of the October 14, 2004 NSR permit, as amended March 22, 2010. If no shipments of distillate oil were received during the semi-annual period, the semi-annual report shall consist of the dates included in the semi-annual period and a statement that no oil was received during the semi-annual period.

### *Compliance Assurance Monitoring*

CAM does not apply to the boilers contained in this section of the Title V permit. Each boiler has pre-controlled emissions less than the major source levels. Emission calculations are available in Attachment C.

### *Streamlined Requirements*

- 9 VAC 5-50-80 (New Source Standard for Visible Emissions)
- 9 VAC 5-40-900, Existing Source Standard for Particulate Matter (ACQR 1-6)
- 9 VAC 5-40-930, Existing Source Standard for Sulfur Dioxide (ACQR 1-6)

9 VAC 5-50-80 has been streamlined for the 10.73 MMBtu/hr boiler (Ref. 5577-1-01) and the four Unilux boilers (Ref. 5575-1-01 through 5575-1-04). Additionally, 9 VAC 5-40-900 and 9 VAC 5-40-930 have been streamlined for these boilers because the permitted limits, as described above, are more stringent than these standards. Attachment C provides calculations supporting the streamlining of the existing source standards for particulate matter and sulfur dioxide.

## **Electrical Generators and Fire Pumps**

The University of Virginia has multiple emergency electrical generators; the following conditions have been established:

### *Limitations*

The following limitations are state BACT requirements from the minor NSR permit issued on 6/29/05, as amended 3/22/10 for the 1,250 kW emergency generator (Ref. 7103-2-01). Please note that the condition numbers are from the NSR permit; all references to “distillate oil” in the permit were revised to read “diesel fuel” to better represent the fuel used in the generator. A copy of the permit is enclosed in Attachment B.

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|---------------|--|
| Condition 4:  | The approved fuel for the diesel engine generator (Ref. 7103-2-01) is diesel fuel. This condition was streamlined with like conditions.  |
| Condition 5:  | This condition establishes the operational situations for the operation of the emergency generator (Ref. 7103-2-01).   |
| Condition 6:  | The diesel engine generator (Ref. 7103-2-01) shall consume no more than 53,261 gallons of diesel fuel per year, calculated monthly as the sum of each consecutive 12-month period.   |
| Condition 7:  | The maximum sulfur content of diesel fuel shall not exceed 0.5 percent per shipment.   |
| Condition 9:  | The diesel engine generator (Ref. 7103-2-01) emissions shall be controlled by proper operation and maintenance. Operators shall be trained in the proper operation of the emission units. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. This condition has been streamlined with like conditions. |
| Condition 10: | This condition outlines the operational requirements of the diesel engine generator (Ref. 7103-2-01) under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP). The condition has been streamlined with similar conditions in the permit.  |
| Condition 11: | The emission limits for the diesel engine generator (Ref. 7103-2-01) are provided in this condition.   |
| Condition 12: | This condition establishes the visible emission limit for the diesel engine generator (Ref. 7103-2-01).  |

The emergency generator (Ref. 7103-2-01) is a 1986 model year engine with an engine displacement less than 10 liters per cylinder. Due to engine's date of construction and displacement, the unit is not subject to the New Source Performance Standards (NSPS) 40 CFR 60, Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, under 40 CFR 60.4200.

Due to the 1986 construction date of the 1,250 KW generator (1,676 HP), the generator is considered an existing source under 40 CFR 63.6590(a)(1)(i); under 40 CFR 63.6590(b)(3), the unit does not have to meet the requirements of Subpart ZZZZ and Subpart A. No initial notification is required under the MACT for this unit.

The emergency generator is a diesel engine; however since diesel fuel is a distillate oil Condition 4 of the NSR permit established the approved fuel for the 1250-kilowatt generator (Ref. 7103-2-01) as distillate oil. The approved fuel has been clarified to be diesel fuel in the Title V permit; additionally, the condition has been streamlined in the Title V permit to include additional emission units that are required to use the same fuel. Condition 6 of the NSR permit establishes the maximum amount of diesel fuel the 1250-kilowatt generator (Ref. 7103-2-01) is permitted to burn; the diesel fuel throughput corresponds to 500 hours of operation per year. Condition 7 of the NSR permit establishes the fuel sulfur content required for the emergency generator (Ref. 7103-2-01). Conditions 5 and 10 establish the 1250-kilowatt generator (Ref. 7103-2-01) is to be used only for: providing power at the location during interruption of service from the normal power supplier; under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP); periodic maintenance testing; and operational training. Total usage for the emergency generator may not exceed 500 hours per year.

Condition 9 of the NSR permit stipulates that the 1250-kilowatt generator (Ref. 7103-2-01) emissions shall be controlled by proper operation and maintenance. Generator operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization with the manufacturer's operating instructions, at minimum. The condition has been streamlined in the Title V permit to include additional emission units subject to the same requirements.

Criteria pollutant emission limits from the operation of the 1250-kilowatt generator (Ref. 7103-2-01) are established in Condition 11 of the NSR permit. The annual emission limits are based on the diesel fuel throughput contained in Condition 6 of the NSR permit, along with the fuel sulfur content established in Condition 7 of the NSR permit. Visible emissions limitations are established in Condition 12 of the NSR permit. Visible emissions from the operation of the 1250-kilowatt generator (Ref. 7103-2-01) shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent.

The following limitations are state BACT requirements from the minor NSR permit issued on July 5, 2005, as amended November 16, 2005, October 19, 2007, December 16, 2009 and March 22, 2010, for the 2,000 kW emergency generator (Ref. 7103-3-01) at the Main Heating Plant. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

- Condition 20: The approved fuel for the emergency generator is diesel fuel. This condition was streamlined with like conditions.
- Condition 21: This condition establishes the operational situations for the operation of the emergency generator (Ref. 7103-3-01).
- Condition 22: This condition outlines the operational requirements of the diesel engine generator (Ref. 7103-3-01) under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP). The condition has been streamlined with similar conditions in the permit.
- Condition 24: The specification requirement establishes the maximum sulfur content of the distillate oil for use in the emergency generator.
- Condition 26: Emissions from the diesel engine generator (Ref. 7103-3-01) shall be controlled by proper operation and maintenance. Operators for the generator shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. This condition has been streamlined with like conditions.
- Condition 27: The emission limits for the emergency generator (Ref. 7103-3-01) are provided in this condition.
- Condition 35: This condition establishes the visible emissions limit for the emergency generator (Ref. 7103-3-01).
- Condition 62: This condition establishes the maintenance and operating procedures for the emergency generator. This condition has been streamlined with like conditions.

The emergency generator (Ref. 7103-3-01) is a 2,000 kW (2,682 HP) compression ignition (CI) reciprocating internal combustion engine (RICE); it was constructed on September 26, 2005. The unit is subject to the MACT, Subpart ZZZZ; since the generator (Ref. 7103-3-01) has a site rating of more than 500 brake horsepower, is located at a major source of HAP emissions, and was constructed after December 19, 2002, it is considered a new source under the MACT, Subpart ZZZZ. However under 40 CFR 63.6590(b), the generator is required only to meet the initial notification requirements under 63.6645(f). The facility has already submitted the initial notification for this emergency generator; therefore, the initial notification requirement is not included in the Title V permit.

Since the generator was constructed on September 26, 2005, prior to April 1, 2006, the unit is not subject to the NSPS, Subpart IIII requirements under 40 CFR 60.4200(a).

Condition 20 of the NSR permit establishes the approved fuel for the emergency generator (Ref. 7103-3-01) as diesel. This condition was streamlined with other generators. Condition 24 of the NSR permit establishes the allowable sulfur content of the diesel.

Condition 21 of the NSR permit limits operation of the emergency generator (Ref. 7103-3-01) to operation for emergency situations, maintenance checks and readiness testing. The emergency generator shall not exceed 500 hours of operation per year. The emission limits for criteria pollutants are established in Condition 27 of the NSR permit; annual emission limits are based on the limitation of the hours of operation (500 hours per year) and the fuel specifications found in Condition 24 of the NSR permit. A visible emission limitation of 20 percent is established for the emergency generator (Ref. 7103-3-01) by Condition 35 of the NSR permit in accordance with 9 VAC 5-50-80 (Rule 5-1: Standards of Performance for Visible Emissions and Fugitive Dust/Emissions). Condition 62 establishes general operating and maintenance procedures for the generator; this condition has also been streamlined with similar conditions in the Title V permit.

The following limitations are state BACT requirements from the minor NSR permit issued on October 13, 2004, as amended March 22, 2010, for the 2,000 kW emergency generator (Ref. 5575-2-01) at 305 Massie Road, in Charlottesville, Virginia. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B:

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| Condition 4:  | The approved fuel for the 2,000 kW diesel-engine generator (Ref. 5575-1-01) is diesel fuel. This condition has been streamlined with like conditions.  |
| Condition 5:  | This condition establishes the operational situations for the operation of the emergency generator (5575-2-01). This condition has been streamlined with like conditions.  |
| Condition 7:  | This condition establishes the fuel sulfur content for the emergency generator (Ref. 5575-2-01).   |
| Condition 9:  | Generator emissions (Ref. 5575-2-01) shall be controlled by proper operation and maintenance. Generator operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. This condition has been streamlined with like conditions. |
| Condition 10: | This condition outlines the operational situations for use of the 2000 kW diesel-engine generator (Ref. 5575-2-01) under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP) This condition has been streamlined with like conditions.   |

- Condition 13: This condition establishes the hourly and annual emission limits for the emergency generator (Ref. 5575-2-01).
- Condition 14: This condition establishes the visible emission limitations from the diesel-engine generator stack (Stack Ref. 5575-2).
- Condition 24: This condition establishes the maintenance and operating procedures for the emergency generator. This condition has been streamlined with like conditions.

The emergency generator (Ref. 5575-2-01) is a 2,000 kW (2,682 HP) CI RICE; it was constructed in January 2006. The unit is subject to the MACT, Subpart ZZZZ; since the generator (Ref. 5575-2-01) has a site rating of more than 500 brake horsepower, is located at a major source of HAP emissions, and was constructed after December 19, 2002, it is considered a new source under the MACT, Subpart ZZZZ. However under 40 CFR 63.6590(b), the generator is required only to meet the initial notification requirements under 63.6645(f). The facility has already submitted the initial notification for this emergency generator; therefore the initial notification requirement is not included in the Title V permit. Condition 24 establishes general operating and maintenance procedures for the generator; this condition has also been streamlined with similar conditions in the Title V permit.

Since the generator was constructed in January 2006, prior to April 1, 2006, the unit is not subject to the NSPS, Subpart IIII requirements under 40 CFR 60.4200(a).

The following limitations are state BACT requirements from the minor NSR permit issued on 12/20/07, as amended 3/22/10 for the 2,000 kW emergency generator (Ref. 1161-1-01). Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

- Condition 3: The permittee must maintain and operate the emergency generator (Ref. No. 1161-1-01) according to the manufacturer's written instructions. This condition is streamlined with the NSPS Subpart IIII Conditions, listed below.
- Condition 4: This condition establishes that the approved fuel for the generator is diesel fuel. This condition is streamlined with the NSPS Subpart IIII Conditions, listed below.
- Condition 5: The condition establishes the maximum sulfur content of diesel fuel for use in the emergency generator. This condition is streamlined with the NSPS Subpart IIII Conditions, listed below.
- Condition 6: The emergency generator (Ref. No. 1161-1-01) shall consume no more than 68,250 gallons of diesel fuel, per year, calculated monthly as the sum of each consecutive 12-month period.

- Condition 8: This condition establishes the operational situations for the operation of the emergency generator (Ref. No. 1161-1-01). This condition is streamlined with the NSPS Subpart IIII Conditions, listed below.
- Condition 9: This condition outlines the operational requirements of the diesel engine generator (Ref. 1161-1-01) under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP). The condition has been streamlined with similar conditions in the permit.
- Condition 10: Except where this permit is more restrictive than the applicable requirement, the New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) emergency generator shall be operated in compliance with the requirements outlined in 40 CFR Part 60, Subpart IIII and 40 CFR Part 63, Subpart ZZZZ.
- Condition 11: The emission limits for the emergency generator (Ref. 1161-1-01) are provided in this condition.
- Condition 12: The NSPS emission standards for the emergency generator (Ref. 1161-1-01) are provided in this condition.
- Condition 13: This condition establishes the visible emissions limit from the emergency generator (Ref. 1161-1-01).
- Condition 22: This condition establishes the maintenance and operating procedures for the emergency generator. This condition has been streamlined with like conditions.

The emergency generator (Ref. 1161-1-01) is a 2006 model year engine, with a rating of 2,000 kW (2,682 HP), and an engine displacement of less than 10 liters per cylinder. The engine is subject to NSPS, 40 CFR 60 Subpart IIII and MACT, 40 CFR 63 Subpart ZZZZ.

Since the emergency generator (Ref. 1161-1-01) was constructed in 2006, has a site rating of more than 500 brake HP, and is located at a major source of HAP emissions (HCl), the unit is subject only to limited requirements of 40 CFR 63, Subpart ZZZZ – *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* under 40 CFR 63.6590(b)(i). The facility has already submitted the initial notification required by 40 CFR 63.6645(f). There are no additional requirements under the MACT.

Since the engine was constructed after June 12, 2006, it is therefore subject to the requirements of NSPS, Subpart IIII.

The permittee must maintain and operate the emergency generator (Ref. 1161-01-1) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine. In addition, the permittee may only change those settings that are approved by the manufacturer, as required by the NSPS Subpart IIII and Condition 3 of the NSR permit. Additional emergency generators, also subject to NSPS Subpart IIII, are included in the permit condition. Condition 22 establishes general operating and maintenance procedures for the generator; this condition has also been streamlined with similar conditions in the Title V permit.

Condition 4 of the NSR permit establishes the approved fuel for the emergency generator (Ref. 1161-1-01) as distillate oil; however the NSPS establishes the approved fuel as diesel fuel. Although the NSR permit establishes the approved fuel as distillate oil, the NSPS establishes the approved fuel as diesel fuel; all references to distillate oil in the NSR permit have been changed to diesel fuel in the Title V permit. The approved fuel has been clarified to be diesel fuel in the Title V permit; additionally, the condition has been streamlined in the Title V permit to include additional emission units that are required to use the same fuel. Similarly, Condition 5 of the NSR permit provides specifications for the diesel fuel to be burned in the emergency generator (Ref. 1161-01-1). As mentioned above, the NSPS establishes the approved fuel as diesel fuel and stipulates requirements for the maximum fuel sulfur content (40 CFR 60.4207(b)). The fuel specifications have from the NSR permit have been clarified to indicate that the distillate oil is diesel fuel, which must meet the NSPS fuel specifications. Additional units, also subject to the NSPS, Subpart IIII requirements have been streamlined into this condition. The fuel reference in Condition 6 has been changed from distillate oil to diesel fuel in accordance with the NSPS.

The fuel throughput is established in Condition 6 of the NSR permit, and corresponds to 500 hours of operation per year. The emergency generator (Ref. 1161-1-01) shall consume no more than 68,250 gallons of diesel fuel, per year. Criteria pollutant emission limits are established in Condition 11 of the NSR permit. The annual emission limits are based on the diesel fuel throughput contained in Condition 6 of the NSR permit, along with the fuel sulfur content established in NSPS (40 CFR 60.4207(b)). In addition to the emission limits in Condition 11 of the NSR permit, the NSPS establishes process emission limits, which are included as Condition 12 of the NSR permit. The NSPS process emission limits were streamlined to include additional emergency generator units, also subject to the NSPS. A visible emission limitation of 10 percent for the emergency generator (Ref. 1161-01-1) is required by Condition 13 of the NSR permit.

Conditions 8 and 9 of the NSR permit establish that the emergency generator (Ref. 1161-1-01) is to be used only for: providing power at the location during interruption of service from the normal power supplier; under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP); periodic maintenance testing; and operational training. Total usage for the emergency generator may not exceed 500 hours per year.

The following limitations are state BACT requirements from the minor NSR permit issued on June 9, 2010, for the 2,500 kW emergency generator (Ref. 0599-1-01) at 2476 Old Ivy Road, in Charlottesville, Virginia. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.



- Condition 3: The permittee must maintain and operate the emergency generator (Ref. 0599-1-01) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine. In addition, the permittee may only change those settings that are approved by the manufacturer.
- Condition 4: This condition establishes that the approved fuel for the generator is diesel fuel. This condition was streamlined with like conditions.
- Condition 5: The condition establishes the maximum sulfur content of diesel fuel for use in the emergency generator. Since the generator is subject to the NSPS, Subpart IIII, the condition has been streamlined with like conditions.
- Condition 6: The emergency generator (Ref. No. 0599-1-01) shall consume no more than 86,650 gallons of diesel fuel, per year, calculated monthly as the sum of each consecutive 12-month period.
- Condition 8: This condition outlines the operational situations for the emergency generator (Ref. 0559-1-01). The condition has been streamlined with similar conditions.
- Condition 9: This condition outlines the operational requirements of the diesel engine generator (Ref. 0599-1-01) under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP). The condition has been streamlined with similar conditions in the permit.
- Condition 10: This condition requires the emergency generator (Ref. 0599-1-01) to comply with any applicable NSPS Subpart IIII and MACT Subpart ZZZZ requirements, except where the NSR permit is more stringent. This condition has been streamlined with similar conditions.
- Condition 11: This condition establishes the hourly and annual emission limits for the emergency generator (Ref. 0599-1-01).
- Condition 12: This condition establishes the process emission limits for the emergency generator (Ref. 0599-1-01) based on the NSPS Subpart IIII requirements.
- Condition 13: This condition establishes the visible emission limitations from the emergency generator (Ref. 0599-1-01).

Condition 23: This condition establishes the maintenance and operating procedures for the emergency generator. This condition has been streamlined with like conditions.

The emergency generator (Ref. 0599-1-01) is a 2,500 kW (3,353 HP) CI RICE; it was constructed in June 2010. The unit is subject to the MACT, Subpart ZZZZ; since the generator (Ref. 0599-1-01) has a site rating of more than 500 brake horsepower, is located at a major source of HAP emissions, and was constructed after December 19, 2002, it is considered a new source under the MACT, Subpart ZZZZ. However under 40 CFR 63.6590(b), the generator is required only to meet the initial notification requirements under 63.6645(f). The facility has already submitted the initial notification for this emergency generator; therefore the initial notification requirement is not included in the Title V permit.

Since the generator was constructed in June 2010, the unit is subject to the NSPS, Subpart IIII requirements under 40 CFR 60.4200(a). The NSR conditions related to the NSPS Subpart IIII requirements have been streamlined with other units subject to the NSPS; a detailed description of the streamlined requirements is provided below. A visible emission limitation of 10 percent for the emergency generator (Ref. 0599-1-01) is required by Condition 13 of the NSR permit. The ELRP requirements are provided in Condition 9 of the NSR permit; this condition has been streamlined with similar conditions.

The fuel throughput is established in Condition 6 of the NSR permit, and corresponds to 500 hours of operation per year. The emergency generator (Ref. 0599-1-01) shall consume no more than 86,650 gallons of diesel fuel, per year. Criteria pollutant emission limits are established in Condition 11 of the NSR permit. The annual emission limits are based on the diesel fuel throughput contained in Condition 6 of the NSR permit, along with the fuel sulfur content established in NSPS (40 CFR 60.4207(b)). In addition to the emission limits in Condition 11 of the NSR permit, the NSPS establishes process emission limits, which are included as Condition 12 of the NSR permit. The NSPS process emission limits were streamlined to include additional emergency generator units, also subject to the NSPS.

The permittee must maintain and operate the emergency generator (Ref. 0599-1-01) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine. In addition, the permittee may only change those settings that are approved by the manufacturer, as required by the NSPS Subpart IIII and Condition 3 of the NSR permit. Additional emergency generators, also subject to NSPS Subpart IIII, are streamlined with the condition, as discussed below. Condition 23 establishes general operating and maintenance procedures for the generator; this condition has also been streamlined with similar conditions in the Title V permit.

Condition 4 of the NSR permit establishes the approved fuel for the emergency generator (Ref. 0599-1-01) as distillate oil; however the NSPS establishes the approved fuel as diesel fuel. Although the NSR permit establishes the approved fuel as distillate oil, the NSPS establishes the approved fuel as diesel fuel; all references to distillate oil in the NSR permit have been changed to diesel fuel in the Title V permit. The approved fuel has been clarified to be diesel fuel in the Title V permit; additionally, the condition has been streamlined in the Title V permit to include

additional emission units that are required to use the same fuel. Similarly, Condition 5 of the NSR permit provides specifications for the diesel fuel to be burned in the emergency generator (Ref. 0599-1-01). As mentioned above, the NSPS establishes the approved fuel as diesel fuel and stipulates requirements for the maximum fuel sulfur content of the diesel fuel (40 CFR 60.4207(b)). The fuel specifications have from the NSR permit have been clarified to indicate that the distillate oil is diesel fuel, which must meet the NSPS fuel specifications. Additional units, also subject to the NSPS, Subpart IIII requirements have been streamlined into this condition. The fuel reference in Condition 6 has been changed from distillate oil to diesel fuel in accordance with the NSPS. A visible emission limitation of 10 percent for the emergency generator (Ref. 0599-1-01) is required by Condition 13 of the NSR permit.

Conditions 8 of the NSR permit establish that the emergency generator (Ref. 0599-1-01) is to be used only for: providing power at the location during interruption of service from the normal power supplier; under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP); periodic maintenance testing; and operational training.

The following limitations are state BACT requirements from the minor NSR permit issued on January 12, 2011, for the two 2,500 kW emergency generators (Ref. 1149-2-01 and 1149-3-01), and one 1,500 kW emergency generator (Ref. 1149-4-01) at the 11<sup>th</sup> Street Parking Garage, in Charlottesville, Virginia. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

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| Condition 3: | The permittee must maintain and operate the emergency generators (Ref. 1149-2-01, 1149-3-01 and 1149-4-01) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine. In addition, the permittee may only change those settings that are approved by the manufacturer. |
| Condition 5: | This condition establishes that the approved fuel for the generators (Ref. 1149-2-01, 1149-3-01 and 1149-4-01) is diesel fuel. This condition was streamlined with like conditions.  |
| Condition 6: | The condition establishes the maximum sulfur content of diesel fuel for use in the emergency generators (Ref. 1149-2-01, 1149-3-01 and 1149-4-01). Since the generators are subject to the NSPS, Subpart IIII, the condition has been streamlined with like conditions.  |
| Condition 7: | The condition establishes a fuel throughput limit of 86,650 gallons per year for each 2,500 kW emergency generator (Ref. 1149-2-01 and 1149-3-01).   |
| Condition 8: | The condition establishes a fuel throughput limit of 52,400 gallons per year for the 1,500 kW emergency generator (Ref.  |

1149-4-01).

- Condition 10: This condition outlines the operational situations for the emergency generators (Ref. 1149-2-01, 1149-3-01 and 1149-4-01). The condition has been streamlined with similar conditions.
- Condition 11: This condition outlines the operational requirements of the emergency generators (Ref. 1149-2-01, 1149-3-01 and 1149-4-01) under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP). The condition has been streamlined with similar conditions in the permit.
- Condition 12: This condition requires the emergency generators (Ref. 1149-2-01, 1149-3-01 and 1149-4-01) to comply with any applicable NSPS Subpart IIII and MACT Subpart ZZZZ requirements, except where the NSR permit is more stringent. This condition has been streamlined with similar conditions.
- Condition 13: This condition establishes the hourly and annual emission limits for each of the 2,500 kW emergency generators (Ref. 1149-2-01 and 1149-3-01).
- Condition 14: This condition establishes the hourly and annual emission limits for the 1,500 kW emergency generator (Ref. 1149-4-01).
- Condition 15: This condition establishes the process emission limits for each of the 2,500 kW emergency generators (Ref. 1149-2-01 and 1149-3-01) based on the NSPS Subpart IIII requirements.
- Condition 16: This condition establishes the process emission limits for the 1,500 kW emergency generator (Ref. 1149-4-01) based on the NSPS Subpart IIII requirements.
- Condition 17: This condition establishes the visible emission limitations from the emergency generators (Ref. 1149-2-01, 1149-3-01 and 1149-4-01).
- Condition 26: This condition establishes the maintenance and operating procedures for the emergency generator. This condition has been streamlined with like conditions.

The two 2,500 kW (3,353 HP) emergency generators (Ref. 1149-2-01 and 1149-3-01) and the one 1,500 kW (2,012 HP) emergency generator (Ref. 1149-4-01) are each CI RICE; the two 2,500 kW emergency generators (Ref. 1149-2-01 and 1149-3-01) were manufactured in February 2011, and the one 1,500 kW emergency generator (Ref. 1149-4-01) is expected to be

manufactured in 2011. The units are all subject to the MACT, Subpart ZZZZ since each generator has a site rating of more than 500 brake horsepower, is located at a major source of HAP emissions, and were constructed after December 19, 2002; each is considered a new source under the MACT, Subpart ZZZZ and has been included in MACT Group 3 (described below). Under 40 CFR 63.6590(b), the generators are required only to meet the initial notification requirements under 63.6645(f).

Since the generators were constructed after April 1, 2006, the units are also subject to the NSPS, Subpart IIII requirements under 40 CFR 60.4200(a). The permittee must maintain and operate the emergency generators according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine. In addition, the permittee may only change those settings that are approved by the manufacturer, as required by the NSPS Subpart IIII and Condition 3 of the NSR permit. Additional emergency generators, also subject to NSPS Subpart IIII, are streamlined with the condition. Condition 26 establishes general operating and maintenance procedures for the generator; this condition has also been streamlined with similar conditions in the Title V permit.

Condition 5 of the NSR permit establishes the approved fuel for the emergency generators as diesel fuel; the condition has been streamlined in the Title V permit to include additional emission units that are required to use the same fuel. Condition 6 of the NSR permit provides specifications for the diesel fuel to be burned in the emergency generators; the NSPS also stipulates requirements for the maximum fuel sulfur content of the diesel fuel (40 CFR 60.4207(b)). Additional units, also subject to the NSPS, Subpart IIII requirements have been streamlined into this condition.

The fuel throughputs established in Conditions 7 and 8 of the NSR permit corresponds to 500 hours of operation per year for each generator. The annual criteria pollutant emission limits, established in Conditions 13 and 14, are based on the diesel fuel throughput contained in Conditions 7 and 8 of the NSR permit, along with the fuel sulfur content established in Condition 6 and the NSPS (40 CFR 60.4207(b)). In addition to the emission limits in Conditions 13 and 14 of the NSR permit, the NSPS establishes process emission limits, which are included as Conditions 15 and 16 of the NSR permit. The NSPS process emission limits were streamlined to include additional emergency generator units also subject to the NSPS. A visible emission limitation of 10 percent for each emergency generator is required by Condition 17 of the NSR permit.

Conditions 10 and 11 of the NSR permit establish that the emergency generators are to be used only for: providing power at the location during interruption of service from the normal power supplier; under an Independent System Operator's (ISO) Emergency Load Response Program (ELRP); periodic maintenance testing; and operational training.

In addition to the emergency generators listed in the NSR permits above, the emergency generators are subject to additional state and/or federal regulations, as described below.

MACT – 40 CFR 63, Subpart ZZZZ

The following emergency generators are subject to the requirements of 40 CFR 63, Subpart ZZZZ:

0094-1-01, 0122-1-01, 0125-1-01, 0126-1-01, 0131-1-01, 0201-1-01, 0207-1-01, 0210-1-01, 0210-2-01, 0210-3-01, 0210-4-01, 0214-1-01, 0215-1-01, 0228-1-01, 0256-1-01, 0256-2-01, 0256-3-01, 0264-1-01, 0267-1-01, 0396-1-01, 0401-1-01, 0446-1-01, 0527-1-01, 0528-1-01, 0534-1-01, 0552-1-01, 0555-1-01, 0593-1-01, 0599-1-01, 0627-1-01, 1142-1-01, 1142-3-01, 1143-1-01, 1146-1-01, 1148-5-01, 1148-6-01, 1149-1-01, 1149-2-01, 1149-3-01, 1149-4-01, 1149-5-01, 1154-1-01, 1161-1-01, 1172-1-01, 1172-2-01, 1176-1-01, 1176-2-01, 1181-1-01, 1194-1-01, 1196-2-01, 1600-2-01, 1600-3-01, 1760-1-01, 1985-1-01, 1998-1-01, 2368-1-01, 2371-1-01, 2464-1-01, 3656-1-01, 3708-1-01, 3759-1-01, 5271-1-01, 5307-1-01, 5307-2-01, 5307-3-01, 5502-1-01, 5506-1-01, 5575-2-01, 5576-2-01, 5576-3-01, 7103-3-01, 7369-1-01, 7147-1-01 and 7533-2-01

The MACT requirements are divided into several categories discussed in detail below.

The following emergency generators have engines greater than 500 HP, and are also greater than the insignificance levels (645 HP) in 9 VAC 5-80-720 (c); the generators are considered existing stationary RICE at a major source of HAP emissions:

0068-1-01, 1142-2-01, 1148-1-01, 1148-2-01, 1148-3-01, 1148-4-01, 1155-1-01, 1196-1-01, 3761-1-01, 7103-2-01, and 7185-1-01

The generators listed under this category are referred to as **MACT Group 1a** in the Title V permit.

The following emergency generators have engines greater than 500 HP, but less than the insignificance levels (645 HP) in 9 VAC 5-80-720 (c); the generators are considered existing stationary RICE at a major source of HAP emissions:

0256-IEG-01, 0580-IEG-01, 1157-IEG-01, 1194-IEG-01 and 2385-IEG-01

The generators listed under this category are referred to as **MACT Group 1b** in the Title V permit. Each of the emergency generators (MACT Group 1a and MACT Group 1b) do not have to meet the requirements of 40 CFR 63, Subpart ZZZZ, and Subpart A, in accordance with 40 CFR 63.6590(b)(3). No initial notification is required.

The following emergency generators have engine horsepower less than or equal to 500 HP, and are considered existing stationary RICE at a major source of HAP emissions:

0094-1-01, 0122-1-01, 0125-1-01, 0126-1-01, 0201-1-01, 0207-1-01, 0210-1-01, 0210-2-01, 0210-3-01, 0210-4-01, 0228-1-01, 0256-1-01, 0401-1-01, 0527-1-01, 0528-1-01, 0534-1-01, 0552-1-01, 1142-3-01, 1143-1-01, 1148-6-01, 1154-1-01, 1172-2-01, 1176-1-01, 1176-2-01, 1181-1-01, 1196-2-01, 1600-3-01, 2464-1-01, 3708-1-01, 3759-1-01, 5271-1-01, 5307-1-01, 5307-2-01, 5307-3-01, 5502-1-01, 5506-1-01, 5576-2-01, 5576-3-01, and 7533-2-01

The generators listed under this category are referred to as **MACT Group 2** in the Title V permit. In accordance with the MACT, 40 CFR 63 Subpart ZZZZ, the following conditions are applicable to the emergency generators listed above (MACT Group 2):

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| Condition VI.A.30 | This condition establishes the hourly operational conditions for the emergency stationary RICE.  |
| Condition VI.A.31 | By May 3, 2013, the CI engines (MACT Group 2) shall meet the applicable work practice standards in 40 CFR 63, Subpart ZZZZ (NESHAP for Stationary RICE).   |
| Condition VI.A.33 | In accordance with Table 2c of the MACT, Subpart ZZZZ, by May 3, 2013, during periods of startup the permittee must minimize the time spend at idle for the emergency engines (Ref. MACT Group 2) and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. |

The following emergency generators have engine horsepower less than or equal to 500 HP, and are considered existing stationary spark-ignition (SI) engines at a major source of HAP emissions:

0396-1-01, 0555-1-01, 0627-1-01 and 7369-1-01

The generators listed under this category are referred to as **MACT Group 5** in the Title V permit. In accordance with the MACT, 40 CFR 63 Subpart ZZZZ, the following conditions are applicable to the emergency generators listed above (Ref. MACT Group 5):

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| Condition VI.A.32 | By October 19, 2013, the SI engines (MACT Group 5) shall meet the applicable work practice standards specified in 40 CFR 63, Subpart ZZZZ (NESHAP for Stationary RICE).  |
| Condition VI.A.33 | In accordance with Table 2c of the MACT, Subpart ZZZZ, by October 19, 2013, during periods of startup the permittee must minimize the time spend at idle for the emergency engines (Ref. MACT Group 5) and minimize the engine's startup time to a period needed for appropriate and safe loading of the |

engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.

The MACT establishes maintenance requirements for MACT Group 2 and MACT Group 5 as specified above. Additionally, the MACT establishes the operational conditions that define emergency operation for the emergency generators contained in MACT Group 2. Condition VI.A.33 of the Title V permit establishes a limitation on the amount of time the emergency engines (Ref. MACT Group 2 and MACT Group 5) can spend at idle.

The following emergency generators have engines greater than 500 HP, and are considered new stationary RICE at a major source of HAP emissions.

0215-1-01, 0267-1-01, 0599-1-01, 1142-1-01, 1148-5-01, 1149-2-01, 1149-3-01, 1149-4-01, 1161-1-01, 1172-1-01, 1194-1-01, 1760-1-01, 1985-1-01, 1998-1-01, 2371-1-01, 5575-2-01, and 7103-3-01

The generators listed in this category are referred to as **MACT Group 3** in the Title V permit. Since each of the emergency generators are new emergency RICE, the units do not have to meet the requirements of Subpart ZZZZ or Subpart A, except for the initial notification requirements of §63.6645(f), in accordance with 40 CFR 63.6590(b).

The following emergency generators have engines less than or equal to 500 HP, and are considered new stationary RICE at a major source of HAP emissions.

0131-1-01, 0214-1-01, 0256-2-01, 0256-3-01, 0264-1-01, 0446-1-01, 0593-1-01, 1146-1-01, 1149-1-01, 1149-5-01, 1600-2-01, 2368-1-01, 3656-1-01, and 7147-1-01

The generators listed in this category are referred to as **MACT Group 4** in the Title V permit. Each of these emergency generators must meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII, for compression ignition engines, under 40 CFR 63.6590(c). In addition to the NSPS, 40 CFR 60, Subpart IIII conditions, discussed below, the following condition was established pursuant to 40 CFR 63.6590(c):

Condition VI.A.34	The emergency generators must meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII.
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The requirements of the NSPS (Subpart IIII) are provided further below.

In addition to the specific requirements listed above for each of the MACT Groups, each of the emergency generators subject to 40 CFR 63, Subpart ZZZZ must meet the following requirement:

Condition VI.A.23:	The emergency generators must be operated in accordance with MACT, Subpart ZZZZ, except where the Title V permit is more restrictive. This condition has been streamlined with:
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Condition 10 of the NSR permit dated 12/20/07, as amended 3/22/10, Condition 10 of the NSR permit dated 6/9/10, and Condition 12 of the NSR permit dated 1/12/11.

### NSPS SUBPART IIII

In addition the requirements under 40 CFR 63, Subpart ZZZZ, the following emergency generators are subject to the New Source Performance Standards (NSPS) 40 CFR 60, Subpart IIII requirements:

0131-1-01, 0214-1-01, 0215-1-01, 0256-2-01, 0256-3-01, 0264-1-01, 0267-1-01, 0446-1-01, 0593-1-01, 0599-1-01, 1142-1-01, 1146-1-01, 1148-5-01, 1149-1-01, 1149-2-01, 1149-3-01, 1149-4-01, 1149-5-01, 1161-1-01, 1172-1-01, 1600-2-01, 1760-1-01, 1985-1-01, 2368-1-01, 2371-1-01, 3656-1-01, and 7147-1-01

The generators listed under this category are referred to as **NSPS Group** in the Title V permit. In accordance with the NSPS, 40 CFR 60 Subpart IIII, the following conditions are applicable to the emergency generators listed above:

- Condition VI.A.1: The condition sets the approved fuel for the emergency generators as diesel fuel, in accordance with the NSPS (40 CFR 60.4207). This condition has been streamlined with: Condition 5 of the 1/12/11 Permit, Condition 4 of the 6/9/10 NSR Permit; Condition 20 of the 7/5/05 NSR Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10; Condition 4 of the 10/13/04 NSR Permit as amended 3/22/10; Condition 4 of the 12/20/07 NSR Permit, as amended 3/22/10; and Condition 4 of the 6/29/05 NSR Permit as amended 3/22/10.
- Condition VI.A.3: This condition establishes the allowable fuel sulfur content for the diesel fuel in accordance with the NSPS (40 CFR 60.4207(b)). This condition has been streamlined with: Condition 5 of the 12/20/07 NSR Permit, as amended 3/22/10; Condition 6 of the 1/12/11 NSR Permit; and Condition 5 of the 6/9/10 NSR Permit.
- Condition VI.A.10: The permittee must maintain and operate the emergency generators according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine. In addition, the permittee may only change those settings that are approved by the manufacturer (40 CFR 60.4206 and 40 CFR 60.4211). This condition has been streamlined with: Condition 3 of the 1/12/11 NSR Permit; Condition 3 of the 6/9/10 NSR Permit; and Condition 3 of the 12/20/07 NSR Permit as amended 3/22/10.

- Condition VI.A.22: The emergency generators must be operated in accordance with NSPS, Subpart IIII, except where the Title V permit is more restrictive. This condition has been streamlined with: Condition 12 of the 1/12/11 NSR Permit; Condition 10 of the 6/9/10 NSR Permit; and Condition 10 of the 12/20/07 NSR Permit as amended 3/22/10.
- Condition VI.A.24: The condition sets the process emission limits for the emergency generator (Ref. 0256-2-01) in accordance with 40 CFR 60.4205(a) and 40 CFR 60.4211(b).
- Condition VI.A.25: The condition sets process emission limits for the emergency generators (0267-1-01, 1149-1-01, 1149-2-01, 1149-3-01 and 1161-1-01) in accordance with 40 CFR 60.4205(a) and 40 CFR 60.4211(b). This condition has been streamlined with Condition 12 of the NSR permit dated 12/20/07, as amended 3/22/10, and Condition 15 of the 1/12/11 permit.
- Condition VI.A.26: The condition sets the process emission limits for the emergency generators (0131-1-01, 0214-1-01, 0215-1-01, 0256-3-01, 0264-1-01, 0446-1-01, 0594-1-01, 0599-1-01, 1142-1-01, 1146-1-01, 1148-5-01, 1149-4-01, 1149-5-01, 1172-1-01, 1600-2-01, 1760-1-01, 1985-1-01, 2368-1-01, 2371-1-01, 3656-1-01, and 7147-1-01) in accordance with 40 CFR 60.4205(b) and 40 CFR 60.4211(b). This condition has been streamlined with Condition 16 of the 1/12/11 NSR Permit and Condition 12 of the 6/9/10 NSR Permit.
- Condition VI.A.29: The condition establishes that emergency generators may be operated for the purpose of maintenance check and readiness testing, in accordance with 40 CFR 60.4211(e). This condition has been streamlined with: Condition 10 of the 1/12/11 NSR Permit; Condition 8 of the 6/9/10 NSR Permit; and Condition 8 of the 12/20/07 NSR Permit as amended 3/22/10.

As listed above, the NSPS requires the use of diesel fuel and specifies sulfur requirements for the diesel fuel. The MACT and NSPS both stipulate that each emergency generator is to be operated for emergency situations, or readiness testing. The NSPS also establishes performance standards for each generator subject to the requirements.

In addition to the NSR permits and the NSPS and MACT requirements listed above, the following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable to multiple units at the facility; applicable emission units are listed in the Title V permit with each condition:

9 VAC 5-50-80, New Source Standard for Visible Emissions

The following condition in the Title V permit was established pursuant to these Codes:

Condition VI.A.21: Visible emissions from emergency generators (0068-1-01, 0267-1-01, 1149-1-01, 1194-1-01, 1196-1-01, 1998-1-01, 1148-1-01, 1148-2-01, 1148-3-01, 1148-4-01, 1155-1-01, 3761-1-01, 7103-2-01, 7103-3-01, 7185-1-01) shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity.

The visible emission limit for the emergency generators listed above is streamlined with the Condition 12 from the NSR permit dated 6/29/05 Permit as amended 3/22/10, and Condition 35 of the NSR permit dated 7/5/05 Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.

The NSPS, Subpart IIII and MACT, Subpart ZZZZ provide more stringent requirements to ensure the Visible Emissions limitation, listed above, is met.

*Monitoring and Recordkeeping*

The following Monitoring and Recordkeeping requirements are from the minor NSR permit issued on 6/29/05, as amended 3/22/10 for the 1,250 kW emergency generator (Ref. 7103-2-01). Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

Condition 8: This condition requires the facility to retain fuel certifications from the fuel suppliers to show compliance with the fuel specifications and emission limits. This condition has been streamlined with Condition 9 of the 1/12/11 permit, Condition 7 of the 6/9/10 permit, Condition 25 of the 7/5/05 permit as amended 11/16/05, 10/19/07, 12/16/09, and 3/22/10, Condition 8 of the 10/13/04 Permit, as amended 3/22/10, and Condition 7 of the 12/20/07 Permit as amended 3/22/10.

Condition 9: The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the generators. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ. This condition has been streamlined with Condition 9 of the 10/13/04 Permit, as amended 3/22/10, and Condition 26 of the 7/5/05 Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.

Condition 13: This condition establishes the requirement to maintain records of emission data and operating parameters to show compliance with the NSR permit. This condition has been streamlined with Condition 20 of the 1/12/11 permit, Condition 17 of the 6/9/10 Permit, Condition 18 of the 10/13/04 Permit, as amended 3/22/10, Conditions 17 of 12/20/07 Permit as amended 3/22/10 and Condition 58 of 7/5/05 Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.

Condition 11 of the NSR permit dated 6/29/05, as amended 3/22/10, contains the hourly and annual criteria pollutant emission limits for the 1,250 kW emergency generator (Ref. 7103-2-01). Hourly emission limits are based on the rated capacity of the generator in MMBtu/hr (Ref. 7103-2-01) and emission factors from AP-42, Chapter 3.4. The following equation and emissions factors will be used to determine actual emissions from the operation of the 1,250 kW emergency generator (Ref. 7103-2-01):

$$E = F \times N$$

Where: E = emission rate (lb/time period)  
F = pollutant specific emission factor, provided in Attachment C  
N = rated capacity (in MMBtu/hr)

Annual emission limits are based on the distillate oil throughput limit of 53,261 gallons of distillate oil per year, provided in Condition 6 of the NSR permit. Condition 8 requires the permittee to obtain fuel supplier certifications that specify the amount and sulfur content of all distillate oil for the emergency generator; [Condition 13](#) requires the permittee to keep records of fuel throughput and hours of operation. Recordkeeping demonstrating compliance with the fuel throughput limits and hours of operation provide reasonable assurance of compliance with the annual criteria pollutant emission limits. The recordkeeping requirements satisfy the periodic monitoring requirements. Emission factors and calculations are provided in Attachment C.

The following Monitoring and Recordkeeping requirements are from the minor NSR permit issued on 12/20/07, as amended 3/22/10 for the 2,000 kW emergency generator (Ref. 1161-1-01). Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

Condition 2: The permittee must install a non-resettable hour meter prior to start up in accordance with 40 CFR 60.4209. This condition has been combined with Condition 2 of the 1/12/11 permit, Condition 2 of the 6/9/10 permit, Condition 2 of the NSR permit dated 12/20/07, and applies to the generators in the NSPS Group (as defined above). The hour meter shall be provided with adequate access for inspection

Condition 7: This condition requires the facility to retain fuel certifications from the fuel suppliers to show compliance with the fuel

specifications and emission limits. This condition has been streamlined with Condition 9 of the 1/12/11 permit, Condition 7 of the 6/9/10 permit, Condition 25 of the 7/5/05 permit as amended 11/16/05, 10/19/07, 12/16/09, and 3/22/10, Condition 8 of the 10/13/04 Permit, as amended 3/22/10, and Condition 8 of the 6/29/05 Permit as amended 3/22/10.

Condition 17: This condition establishes the requirement to maintain records of emission data and operating parameters to show compliance with the NSR permit. This condition has been streamlined with Condition 20 of the 1/12/11 permit, Condition 17 of the 6/9/10 permit, Condition 18 of the 10/13/04 Permit, as amended 3/22/10, Condition 13 of the 6/29/05 Permit as amended 3/22/10, and Condition 58 of 7/5/05 Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.

Condition 11 of the NSR permit dated 12/20/07, as amended 3/22/10, contains the hourly and annual criteria pollutant emission limits for the 2,000 kW emergency generator (Ref. 1161-1-01). Hourly emissions of PM, PM-10, CO, NO<sub>x</sub> and VOC are based on the rated capacity of the generator and standards from the NSPS. Annual emission limits are based on hourly emission limits and an operating limit of 500 hours/yr, the same basis from which the diesel fuel throughput limit of 68,250 gallons of diesel fuel per year, provided in Condition 6 of the NSR permit, was derived. Condition 7 of the NSR permit requires the permittee to obtain fuel supplier certifications that specify the amount, and sulfur content of all diesel fuel for the emergency generator; Condition 17 requires the permittee to keep records of fuel throughput and hours of operation. Recordkeeping demonstrating compliance with the fuel throughput limits and hours of operation provide reasonable assurance of compliance with the annual criteria pollutant emission limits. The recordkeeping requirements satisfy the periodic monitoring requirements. Emission factors and calculations are provided in Attachment C. Condition 12 of the NSR permit dated 12/20/07, as amended 3/22/10, establishes the NSPS emission limits for the 2,000 kW emergency generator (Ref. 1161-1-01). Compliance with the NSPS emission standards is established through keeping records of the engine manufacture data and emission certification, showing compliance with the NSPS limits, as required in 40 CFR 60.4211(b).

Condition 13 of the NSR permit dated 12/20/07, as amended 3/22/10, establishes the visible emission limit for the emergency generator (Ref. 1161-1-01). Initial compliance with the visible emission limit was established by an initial visible emission evaluation (VEE). The facility is required to maintain and operate the emergency generator (Ref. No. 1161-1-01) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine, as required in Condition 3 of the NSR permit. Continued compliance with the visible emission limit is established through recordkeeping of all scheduled and unscheduled maintenance, and operator training. The DEQ may also request additional testing at any time to demonstrate compliance with the limits.

The following Monitoring and Recordkeeping requirements are from the minor NSR permit issued on July 5, 2005, as amended November 16, 2005, October 19, 2007, December 16, 2009

and March 22, 2010, for the 2,000 kW emergency generator (Ref. 7103-3-01) at the Main Heating Plant. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

- Condition 25: This condition requires the facility to retain fuel certifications from the fuel suppliers to show compliance with the fuel specifications and emission limits. This condition has been streamlined with Condition 9 of the 1/12/11 Permit, Condition 8 of the 10/13/04 Permit as amended 3/22/10, Condition 8 of the 6/29/05 Permit as amended 3/22/10, Condition 7 of the 12/20/07 Permit as amended 3/22/10, and Condition 7 of the 6/9/10 Permit.
- Condition 26: The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the generators. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ. This condition has been streamlined with Condition 9 of the 6/29/05 Permit as amended 3/22/10, and Condition 9 of the 10/13/04 Permit, as amended 3/22/10.
- Condition 58: This condition establishes the requirement to maintain records of emission data and operating parameters to show compliance with the NSR permit. This condition has been streamlined with Condition 20 of the 1/12/11 Permit, Condition 18 of the 10/13/04 Permit, as amended 3/22/10, Condition 17 of the 6/9/10 Permit, Condition 13 of the 6/29/05 Permit as amended 3/22/10, and Condition 17 of 12/20/07 Permit as amended 3/22/10.

Condition 27 of the NSR Permit dated July 5, 2005, as amended November 16, 2005, October 19, 2007, December 16, 2009 and March 22, 2010, for the 2,000 kW emergency generator (Ref. 7103-3-01), establishes the hourly and annual criteria pollutant emission limits. Hourly emission limits are based on the maximum rated capacity of the generator and emission standards from the NSPS. Annual emission limits are derived from the hourly emission calculations and the 500 hour limitation established in Condition 21. Recordkeeping demonstrating compliance with the hours of operation provides reasonable assurance of compliance with the annual criteria pollutant emission limits; the recordkeeping requirements satisfy the periodic monitoring requirements. Emission factors and calculations are provided in Attachment C.

Condition 35 of the NSR permit establishes the visible emission limit for the emergency

generator (Ref. 7103-3-01). The facility is required to maintain and operate the emergency generator (Ref. 7103-3-01) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine, as required in Condition 26 of the NSR permit. Continued compliance with the hourly and annual emission limits and the visible emission limit is established through recordkeeping of all scheduled and unscheduled maintenance and operator training. The DEQ may also request additional testing at any time to demonstrate compliance with the limits.

The following Monitoring and Recordkeeping requirements are from the minor NSR permit issued on October 13, 2004, as amended March 22, 2010, for the 2,000 kW emergency generator (Ref. 5575-2-01) at the 305 Massie Road in Charlottesville, Virginia. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

- Condition 8: This condition requires the facility to retain fuel certifications from the fuel suppliers to show compliance with the fuel specifications and emission limits. This condition has been streamlined with Condition 9 of the 1/12/11 Permit, Condition 8 of the 6/29/05 Permit as amended 3/22/10, Condition 7 of the 6/9/10 permit, Condition 25 of the 7/5/05 permit as amended 11/16/05, 10/19/07, 12/16/09, and 3/22/10, and Condition 7 of the 12/20/07 Permit as amended 3/22/10.
- Condition 9: The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the generators. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ. This condition has been streamlined with Condition 9 of the 6/29/05 Permit as amended 3/22/10, and Condition 26 of the 7/5/05 Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.
- Condition 18: This condition establishes the requirement to maintain records of emission data and operating parameters to show compliance with the NSR permit. This condition has been streamlined with Condition 20 of the 1/12/11 Permit, Condition 17 of the 6/9/10 permit Condition 13 of the 6/29/05 Permit as amended 3/22/10, Condition 17 of 12/20/07 Permit as amended 3/22/10 and Condition 58 of 7/5/05 Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.

Condition 13 of the NSR Permit dated October 13, 2004, as amended March 22, 2010, for the 2,000 kW emergency generator (Ref. 5575-2-01), establishes the hourly and annual criteria pollutant emission limits. Hourly emission limits for PM, PM-10, NO<sub>x</sub>, CO and VOC are based

on the maximum rated capacity of the generator and emission factors from the generator manufacturer. Hourly emission limits for SO<sub>2</sub> are based on the maximum rated capacity of the generator, emission factors from AP-42 Chapter 3.4, and the maximum allowable sulfur content of the distillate oil as specified in Condition 7. Annual emission limits are derived from the hourly emission calculations and the 500 hour limitation established in Condition 5. Recordkeeping demonstrating compliance with the hours of operation provides reasonable assurance of compliance with the annual criteria pollutant emission limits; the recordkeeping requirements satisfy the periodic monitoring requirements. Emission factors and calculations are provided in Attachment C.

Condition 14 of the NSR permit establishes the visible emission limit for the emergency generator (Ref. 5575-2-01). The facility is required to maintain and operate the emergency generator (Ref. 5575-2-01) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine, as required in Condition 9 of the NSR permit. Continued compliance with the hourly and annual emission limits and the visible emission limit is established through recordkeeping of all scheduled and unscheduled maintenance and operator training. The DEQ may also request additional testing at any time to demonstrate compliance with the limits.

The following Monitoring and Recordkeeping requirements are from the minor NSR permit issued on June 9, 2010, for the 2,500 kW emergency generator (Ref. 0599-1-01) located at 2476 Old Ivy Road in Charlottesville, Virginia. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

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| Condition 2:  | The permittee must install a non-resettable hour meter prior to start up in accordance with 40 CFR 60.4209. This condition has been combined with Condition 2 of the NSR permit dated 12/20/07, and Condition 2 of the 1/12/11 Permit, and applies to the generators in the NSPS Group (as defined above). The hour meter shall be provided with adequate access for inspection.  |
| Condition 7:  | This condition requires the facility to retain fuel certifications from the fuel suppliers to show compliance with the fuel specifications and emission limits. This condition has been streamlined with Condition 9 of the 1/12/11 Permit, Condition 8 of the 6/29/05 Permit as amended 3/22/10, Condition 25 of the 7/5/05 permit as amended 11/16/05, 10/19/07, 12/16/09, and 3/22/10, Condition 8 of the 10/13/04 Permit as amended 3/22/10, and Condition 7 of the 12/20/07 Permit as amended 3/22/10. |
| Condition 17: | This condition establishes the requirement to maintain records of emission data and operating parameters to show compliance with the NSR permit. This condition has been streamlined with Condition 20 of the 1/12/11 Permit, Condition 13 of the 6/29/05 Permit as amended 3/22/10, Condition 18 of the  |



10/13/04 Permit as amended 3/22/10, Condition 17 of 12/20/07  
Permit as amended 3/22/10 and Condition 58 of 7/5/05 Permit  
as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.

Condition 11 of the NSR permit dated 6/9/10 contains the hourly and annual criteria pollutant emission limits for the 2,500 kW emergency generator (Ref. 0599-1-01). Hourly emissions of NO<sub>x</sub>, CO and VOC are based on the rated capacity of the generator and standards from the NSPS. Annual emission limits are based on the hourly emission limits and an operating limit of 500 hrs/yr, which is the same basis from which the diesel fuel throughput limit of 86,650 gallons of diesel fuel per year, provided in Condition 6 of the NSR permit, was derived. Condition 7 of the NSR permit requires the permittee to obtain fuel supplier certifications that specify the amount, and sulfur content of all diesel fuel for the emergency generator; Condition 2 requires the permittee to install a non-resettable hour meter; and Condition 17 requires the permittee to keep records of fuel throughput limits and hours of operation. The recordkeeping requirements in Condition 17 provide reasonable assurance of compliance with the hourly and annual criteria pollutant emission limits by: demonstrating compliance with the fuel throughput limits, hours of operation, and records of engine manufacture data. The recordkeeping requirements satisfy the periodic monitoring requirements. Emission factors and calculations are provided in Attachment C.

Condition 12 of the NSR permit dated 6/9/10, establishes the NSPS process emission limits for the 2,500 kW emergency generator (Ref. 0599-1-01). Compliance with the NSPS emission standards is established through keeping records of the engine manufacture data and emission certification, showing compliance with the NSPS limits, as required in 40 CFR 60.4211(c).

Condition 13 of the NSR permit dated 6/9/10, establishes the visible emission limit for the emergency generator (Ref. 0599-1-01). Initial compliance with the visible emission limit was established by an initial visible emission evaluation (VEE). The facility is required to maintain and operate the emergency generator (Ref. 0599-1-01) according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine, as required in Condition 3 of the NSR permit. Continued compliance with the visible emission limit is established through recordkeeping of all scheduled and unscheduled maintenance, and operator training. The DEQ may also request additional testing at any time to demonstrate compliance with the limits.

The following Monitoring and Recordkeeping requirements are from the minor NSR permit issued on January 12, 2011, for the two 2,500 kW diesel-fired emergency generators (Ref. 1149-2-01 and 1149-3-01) and one 1,500 kW diesel-fired emergency generator (Ref. 1149-4-01) located adjacent to the 11<sup>th</sup> Street Parking Garage in Charlottesville, Virginia. Please note that the condition numbers are from the NSR permit. A copy of the permit is enclosed in Attachment B.

Condition 2:	The permittee must install a non-resettable hour meter prior to start up in accordance with 40 CFR 60.4209. This condition has been combined with Condition 2 of the NSR permit dated 12/20/07, and Condition 2 of the 6/9/10 Permit, and applies to
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the generators in the NSPS Group (as defined above). The hour meter shall be provided with adequate access for inspection.

Condition 9: This condition requires the facility to retain fuel certifications from the fuel suppliers to show compliance with the fuel specifications and emission limits. This condition has been streamlined with Condition 7 of the 6/9/10 Permit, Condition 8 of the 6/29/05 Permit as amended 3/22/10, Condition 8 of the 10/13/04 Permit as amended 3/22/10, Condition 25 of the 7/5/05 permit as amended 11/16/05, 10/19/07, 12/16/09, and 3/22/10, and Condition 7 of the 12/20/07 Permit as amended 3/22/10.

Condition 20: This condition establishes the requirement to maintain records of emission data and operating parameters to show compliance with the NSR permit. This condition has been streamlined with Condition 17 of the 6/9/10 Permit, Condition 18 of the 10/13/04 Permit as amended 3/22/10, Condition 13 of the 6/29/05 Permit as amended 3/22/10, Condition 17 of 12/20/07 Permit as amended 3/22/10 and Condition 58 of 7/5/05 Permit as amended 11/16/05, 10/19/07, 12/16/09 and 3/22/10.

Conditions 13 and 14 of the NSR permit dated 1/12/11 contain the hourly and annual criteria pollutant emission limits for the three emergency generators (Ref. 1149-2-01, 1149-3-01, 1149-4-01). Hourly emissions of NO<sub>x</sub> and CO are based on the rated capacity of the generator and manufacturer emission data. Annual emission limits are based on the hourly emission limits and an operating limit of 500 hrs/yr, which is the same basis from which the diesel fuel throughput limits provided in Conditions 7 and 8 of the NSR permit, were derived. Condition 9 of the NSR permit requires the permittee to obtain fuel supplier certifications that specify the amount, and sulfur content of all diesel fuel for the emergency generators; Condition 2 requires the permittee to install a non-resettable hour meters; and Condition 20 requires the permittee to keep records of fuel throughput limits and hours of operation. The recordkeeping requirements in Condition 20 provide reasonable assurance of compliance with the hourly and annual criteria pollutant emission limits by: demonstrating compliance with the fuel throughput, hours of operation, and records of engine manufacture data. The recordkeeping requirements satisfy the periodic monitoring requirements. Emission factors and calculations are provided in Attachment C.

Conditions 15 and 16 of the NSR permit dated 1/12/11, establish the NSPS process emission limits for the three emergency generators (Ref. 1149-2-01, 1149-3-01, 1149-4-01). Compliance with the NSPS emission standards is established through keeping records of the engine manufacture data, and emission certifications showing compliance with the NSPS limits, as required in 40 CFR 60.4211(c).

Condition 17 of the NSR permit dated 1/12/11, establishes the visible emission limit for the three emergency generators. Initial compliance with the visible emission limit was established by an initial visible emission evaluation (VEE). The facility is required to maintain and operate the

emergency generators according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the manufacturer, over the entire life of the engine, as required in Condition 3 of the NSR permit. Continued compliance with the visible emission limit is established through recordkeeping of all scheduled and unscheduled maintenance, and operator training. The DEQ may also request additional testing at any time to demonstrate compliance with the limits.

In addition to the monitoring and recordkeeping requirements from the NSR permits, outlined above, the facility has multiple generators subject to NSPS and MACT requirements. The following monitoring and recordkeeping conditions were established to determine compliance with the NSPS and MACT limitations:

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|------------------|---|
| Condition VI.B.1 | The permittee must install a non-resettable hour meter prior to start up in accordance with 40 CFR 60.4209 and 40 CFR 63.6590(c). This condition has been combined with Condition 2 of the NSR permit dated 1/12/11, Condition 2 of the 6/9/10 permit, Condition 2 of the NSR permit dated 12/20/07, and applies to the generators in the NSPS Group (as defined above). The hour meter shall be provided with adequate access for inspection.  |
| Condition VI.B.2 | By May 3, 2013 for CI engines and 10/19/13 for SI engines, the permittee must install non-resettable hour meters on the emergency RICE in accordance with 40 CFR 63.6625(f) for the engines in MACT Group 2 and MACT Group 5. The hour meter shall be provided with adequate access for inspection.   |
| Condition VI.B.3 | In accordance with 40 CFR 63.6625(e), by May 3, 2013 for CI engines and 10/19/13 for SI engines, the permittee shall develop a maintenance plan that provides to the extent practicable for the maintenance and operation of each engine in a manner consistent with good air pollution control practice for minimizing emissions, for the emergency generators in MACT Group 2 and MACT Group 5.   |
| Condition VI.B.4 | The permittee is required to keep records of all fuel supplier certifications to show compliance with the fuel specifications in 40 CFR 60.4207, 40 CFR 60.4211, and 40 CFR 80.510. This condition has been streamlined with Condition 9 of the 1/12/11 Permit, Condition 8 of the 10/13/04 Permit as amended 3/22/10, Condition 8 of the 6/29/05 Permit as amended 3/22/10, Condition 7 of the 6/9/10 permit, Condition 25 of the 7/5/05 permit as amended 11/16/05, 10/19/07, 12/16/09, and 3/22/10, and Condition 7 of the 12/20/07 Permit as amended 3/22/10. |

Condition VI.B.6

The permittee is required to keep records of engine manufacturer data indicating compliance with the process emission limits in Conditions VI.A.24 – VI.A.26. In addition to the manufacturer data, the permittee must also keep records of: the hours of operation; scheduled and unscheduled maintenance and operator training, as specified in the recordkeeping condition. By May 3, 2013 for CI engines and 10/19/13 for SI engines, the permittee must keep records of all maintenance conducted on the listed emergency generators as well as hours of operation that are recorded on the hour meter.

The requirements for installation of non-resettable hour meters, provided in Conditions VI.B.1 and VI.B.2, establishes the means of determining compliance with the hour limitations specified in Conditions VI.A.29 – VI.A.30. The facility is required to keep records of the hours of operation of each generator to ensure the limitations of Conditions VI.A.29 – VI.A.30 are met. The hour meter also provides reasonable assurance of compliance for the annual emission limits in Conditions VI.A.12 – VI.A.18.

The facility is required under Condition VI.B.4 and VI.B.6 to maintain records of all fuel supplier certifications. The fuel certifications for the NSPS generators, as required in Condition VI.B.4 and VI.B.6, provide assurance of compliance with the fuel requirements outlined in Conditions VI.A.1 and VI.A.3. This condition has been streamlined with the similar individual NSR permit conditions.

The required records of engine manufacturing data and emission certifications, for the NSPS affected generators required in Condition VI.B.6(m), assures compliance with the engine standards outlined in 40 CFR 60.4205, and Conditions VI.A.24 – VI.A.26.

The required maintenance and operating plans assure compliance with NSPS and MACT requirements to maintain and operate the engine in accordance with the manufacturer's written instructions. The maintenance and operating plans, as well as records of all scheduled and unscheduled maintenance and operator training will also help to establish reasonable assurance of compliance with the emission limits and visible emission standards established in the permit. The facility is also required to maintain hours of operation for each of the emergency generators contained in MACT Groups 1a, MACT Group 2 (after 5/3/13), MACT Group 4, MACT Group 5 (after 10/19/13), and the NSPS Group to ensure that each continues to meet the definition of emergency-use, as found in the Virginia Regulations, the MACT and NSPS.

*Testing*

Upon request by the DEQ, the permittee shall conduct additional visible emission evaluations (VEEs) on the emergency generators to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged with the DEQ.

*Reporting*

The permittee has submitted the initial notifications for emergency generators already constructed in MACT Group 3 that are subject to the MACT, 40 CFR 63 Subpart ZZZZ standards, contained in the Title V permit. The initial notification requirements from 40 CFR 63.6645(f) have been included in the Title V permit for the generators in MACT Group 3 that have not been constructed. The facility has 120 days after the emergency generators become subject to the standard to submit the initial notification to the EPA. There are no other reporting requirements for the remaining MACT Groups. MACT Groups 1a, 1b, 2 and 5 are all exempt from notification requirements under 40 CFR 63.6645(a)(5); MACT Group 4 must meet the requirements of the MACT by meeting the requirements of 40 CFR part 60 subpart IIII for compression ignition engines or 40 CFR 60 subpart JJJJ for spark ignition engines. No further requirements apply for such engines under this part.

#### *Streamlined Requirements*

The following Virginia Administrative Codes have been streamlined in the Title V permit:

##### 9 VAC 5-40-80 (Existing Source Standard for Visible Emissions)

9 VAC 5-40-80 has been streamlined for the electrical generators because all of the installation dates were not available. Therefore, it was assumed that all generators were installed after March 17, 1972.

## **Woodworking Equipment**

### *Limitations*

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

- 9 VAC 5-50-80, New Source Standard for Visible Emissions
- 9 VAC 5-40-2270, Emission Standards for Woodworking Operations

The following condition in the Title V permit was established pursuant to these Codes:

- |                    |  |
|--------------------|--|
| Condition VII.A.2: | Visible emissions from the Cabinet Shop (Ref. 0245-1-01) shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity. |
| Condition VII.A.3: | Particulate matter emissions from the woodworking equipment exhaust shall not exceed 0.05 grains per standard cubic feet of exhaust gas.   |

The following condition was established pursuant to 9 VAC 5-80-110 in order to provide assurance that the aforementioned standards for the woodworking equipment are met. Condition numbers refer to those contained in the Title V permit.

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|--------------------|---|
| Condition VII.A.1: | Particulate matter emissions from the Cabinet Shop (Ref. 0245-1-01) shall be controlled by a fabric filter. |
|--------------------|---|

The facility is not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPS) requirements for incidental wood furniture manufacturing in 40 CFR Part 63, Subpart JJ and 9 VAC 5-60-100 provided that the following conditions are met:

- The production of cabinets, shelves, and counter tops is wood furniture manufacturing, the facility is a major source due to activities unrelated to the wood furniture manufacturing; and
- The facility use of wood furniture coating and adhesives are less than 100 gallons per month.

The facility meets both of these requirements. An enforceable limitation on wood furniture coating and adhesive usage has been included in the permit (Condition VII.A.4).

### *Monitoring and Recordkeeping*

The permit requires operation of a fabric filter to demonstrate compliance with the particulate matter and visible emission requirements. A properly operating fabric filter can achieve compliance with the 0.05 gr/scf particulate limit and the opacity limit in Condition VII.A.2 and VII.A.3.

The permittee will inspect the fabric filter on a weekly basis. The inspection will include a determination of the presence of visible emissions, and an observation of the pressure drop across the filter. Corrective action will be taken if visible emissions are present. A log recording the results of the inspection including pressure drop, presence of visible emissions, and any maintenance or corrective action taken, shall be kept.

The permit also includes a requirement to monitor and record the monthly amount of wood furniture coating and adhesive usage to demonstrate compliance with the monthly limitation.

#### *Testing*

No specific testing has been included in the permit for the woodworking equipment.

#### *Reporting*

No specific reporting has been included in the permit for the woodworking equipment.

#### *Streamlined Requirements*

9 VAC 5-40-80 and 9 VAC 5-40-2280 (Existing Source Standard for Visible Emissions)

9 VAC 5-40-80 and 9 VAC 5-40-2280 have been streamlined for the woodworking equipment because installation dates were not available. Therefore, it was assumed that all woodworking equipment was installed after March 17, 1972.

## **Medical Equipment**

### *Limitations*

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-80, New Source Standard for Visible Emissions

The following condition in the Title V permit was established pursuant to these Codes:

Condition VIII.A.1: Visible emissions from each ethylene oxide sterilizer (Ref. 1150-1-04 and 1150-1-05) shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity.

The following condition was established pursuant to 9 VAC 5-80-110 in order to provide assurance that the aforementioned standards for the medical equipment are met. Condition numbers refer to those contained in the Title V permit.

Condition VIII.A.2: Ethylene oxide sterilizer (Ref. 1150-1-04 and 1150-1-05) emissions shall be controlled by proper operation and maintenance. Ethylene oxidizer operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization with the manufacturer's operating instructions, at minimum.

### *Monitoring and Recordkeeping*

The permittee shall maintain records of all emissions data and operating parameters necessary to demonstrate compliance with this permit. These records shall include, but are not limited to, records of the required ethylene oxidizer operator training including a statement of time, place and nature of training provided.

A properly operating ethylene oxide sterilizer will not result in any visible emissions. Historically, there have been no visible emissions from these units. They are operated within the hospital on carts. Therefore, no visible emissions evaluations are necessary. The DEQ reserves the right to request an evaluation of visible emissions in the future if warranted. Records indicating that the ethylene oxide sterilizer operators have been trained will help ensure that the units are operated properly and in accordance with manufacturer's operating instructions.

### *Testing*

No specific testing has been included in the permit for the medical equipment.



*Reporting*

No specific reporting has been included in the permit for the medical equipment.

*Streamlined Requirements*

There are no streamlined requirements for the medical equipment.

## **GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

### **Comments on General Conditions**

#### **B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-2003”.

This general condition cite(s) the Article(s) that follow(s):  
Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

#### **F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

#### **J. Permit Modification**

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources

9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources

9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications  
Locating in Nonattainment Areas

#### **U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

#### **Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:  
40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.

40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.

40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

#### **STATE ONLY APPLICABLE REQUIREMENTS**

There are no “state only” requirements that apply to this facility.

#### **FUTURE APPLICABLE REQUIREMENTS**

A review of the promulgated National Emissions Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters in 40 CFR 63, Subpart DDDDD indicates those standards may apply to the boilers, as identified in Section II (Emission Units) and Section IX (Insignificant Emission Units). The EPA Administrator signed the final rule on 02/21/2011, and it was published in the Federal Register on March 21, 2011. The regulation was stayed by the EPA on May 16, 2011. The compliance date for existing sources will be three years after the stay of the regulation is lifted. The applicable requirements from Subpart DDDDD will be included in the next permit renewal. However, the source must comply with the applicable provisions of the subpart in accordance with indicated compliance times even if those requirements are not included in the permit.

#### **INAPPLICABLE REQUIREMENTS**

The provisions of 40 CFR Part 98 – Mandatory Greenhouse Gas Reporting require owners and operators of general stationary fuel combustion sources that emit 25,000 metric tons CO<sub>2e</sub> or more per year in combined emissions from such units, to report greenhouse gas (GHG) emissions, annually. The definition of “applicable requirement” in 40 CFR 70.2 and 71.2 does not include requirements such as those included in Part 98, promulgated under Clean Air Act (CAA) section 114(a)(1) and 208. Therefore, the requirements of 40 CFR Part 98 are not

applicable under the Title V permitting program.

As a result of several EPA actions regarding GHG under the CAA, emissions of GHG must be addressed for a Title V permit renewed after January 1, 2011. The current state minor NSR (or PSD) permit for the facility contains no GHG-specific applicable requirements and there have been no modifications at the facility requiring a PSD permit. Therefore, there are no applicable requirements for the facility specific to GHG.

## **COMPLIANCE PLAN**

The University of Virginia was last inspected on December 9, 2009 and was found to be in compliance with all applicable requirements. No compliance plan was included in the application or in the permit.

## INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
0334-1-01	Natural gas fired micro-turbine	9 VAC 5-80-720 B	NOx, VOC, and PM	30 kW
0334-2-01	Liquid fired micro-turbine	9 VAC 5-80-720 B	NOx, VOC, and PM	30 kW
0121-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		230,000 BTU/hr
0121-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		279,072 BTU/hr
0121-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		574,416 BTU/hr
0207-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,500,000 BTU/hr
0207-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		1,500,000 BTU/hr
0208-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		264,000 BTU/hr
0223-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		212,000 BTU/hr
0227-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		125,000 BTU/hr
0227-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0227-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0227-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		125,000 BTU/hr
0227-ICU-05	Natural gas combustion unit	9 VAC 5-80-720 C		125,000 BTU/hr
0227-ICU-06	Natural gas combustion unit	9 VAC 5-80-720 C		125,000 BTU/hr
0227-ICU-07	Natural gas combustion unit	9 VAC 5-80-720 C		125,000 BTU/hr
0227-ICU-08	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0227-ICU-09	Natural gas combustion unit	9 VAC 5-80-720 C		50,000 BTU/hr
0228-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,096,000 BTU/hr
0231-ICU-01	Nat. gas & #2 fuel oil combustion unit	9 VAC 5-80-720 C		808,000 BTU/hr
0243-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		150,000 BTU/hr
0243-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		50,000 BTU/hr
0243-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		50,000 BTU/hr
0254-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,260,000 BTU/hr
0254-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		1,260,000 BTU/hr
0255-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		200,000 BTU/hr
0255-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		38,500 BTU/hr
0255-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		1,650,000 BTU/hr
0255-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		30,000 BTU/hr
0257-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0257-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0257-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0257-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0257-ICU-05	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0257-ICU-06	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0257-ICU-07	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0257-ICU-08	Natural gas combustion unit	9 VAC 5-80-720 C		75,000 BTU/hr
0261-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		4,184,000 BTU/hr
0263-ICU-01	#2 Fuel oil & N.gas combustion unit	9 VAC 5-80-720 C		797,000 BTU/hr
0317-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		93,000 BTU/hr

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
0317-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		93,000 BTU/hr
0317-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		74,000 BTU/hr
0321-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,096,000 BTU/hr
0325-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		80,000 BTU/hr
0329-ICU-01	Liquid Propane combustion unit	9 VAC 5-80-720 C		62,000 BTU/hr
0331-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		254,000 BTU/hr
0334-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		967,000 BTU/hr
0356-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		700,000 BTU/hr
0373-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		700,000 BTU/hr
0396-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,200,000 BTU/hr
0396-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		1,200,000 BTU/hr
0436-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		88,000 BTU/hr
0436-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		88,000 BTU/hr
0436-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		152,000 BTU/hr
0439-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		150,000 BTU/hr
0439-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		150,000 BTU/hr
0441-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		422,400 BTU/hr
0481-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0481-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0550-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		2,501,000 BTU/hr
0550-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		2,501,000 BTU/hr
0550-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		2,501,000 BTU/hr
0550-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		199,000 BTU/hr
0550-ICU-05	Natural gas combustion unit	9 VAC 5-80-720 C		199,000 BTU/hr
0550-ICU-06	Natural gas combustion unit	9 VAC 5-80-720 C		199,000 BTU/hr
0550-ICU-07	Natural gas combustion unit	9 VAC 5-80-720 C		199,000 BTU/hr
0556-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,000 BTU/hr
0556-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,000 BTU/hr
0556-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		199,000 BTU/hr
0558-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		60,000 BTU/hr
0558-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		240,000 BTU/hr
0558-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		240,000 BTU/hr
0558-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		528,000 BTU/hr
0558-ICU-05	Natural gas combustion unit	9 VAC 5-80-720 C		375,000 BTU/hr
0558-ICU-06	Natural gas combustion unit	9 VAC 5-80-720 C		375,000 BTU/hr
0558-ICU-07	Natural gas combustion unit	9 VAC 5-80-720 C		260,000 BTU/hr
0558-ICU-08	Natural gas combustion unit	9 VAC 5-80-720 C		260,000 BTU/hr
0558-ICU-09	Natural gas combustion unit	9 VAC 5-80-720 C		260,000 BTU/hr
0580-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		561,600 BTU/hr
0580-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		1,050,000 BTU/hr
0583-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		120,000 BTU/hr
0583-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		200,000 BTU/hr
0583-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		150,000 BTU/hr
0583-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0583-ICU-05	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0583-ICU-06	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0583-ICU-07	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0583-ICU-08	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0583-ICU-09	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
0583-ICU-10	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
0583-ICU-11	Natural gas combustion unit	9 VAC 5-80-720 C		90,000 BTU/hr
0583-ICU-12	Natural gas combustion unit	9 VAC 5-80-720 C		90,000 BTU/hr
0583-ICU-13	Natural gas combustion unit	9 VAC 5-80-720 C		40,000 BTU/hr
0583-ICU-14	Natural gas combustion unit	9 VAC 5-80-720 C		39,500 BTU/hr
0583-ICU-15	Natural gas combustion unit	9 VAC 5-80-720 C		250,000 BTU/hr
0583-ICU-16	Natural gas combustion unit	9 VAC 5-80-720 C		250,000 BTU/hr
0583-ICU-17	Natural gas combustion unit	9 VAC 5-80-720 C		250,000 BTU/hr
0594-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		220,000 BTU/hr
0595-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		6,277,000 BTU/hr
0596-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		835,000 BTU/hr
0603-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		857,000 BTU/hr
0627-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		173,900 BTU/hr
0631-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		664,000 BTU/hr
0800-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		299,000 BTU/hr
1600-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		907,800 BTU/hr
1600-ICU-02	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		675,000 BTU/hr
1601-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		150,000 BTU/hr
1626-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		620,000 BTU/hr
1628-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		125,000 BTU/hr
1756-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		3,450 BTU/hr
1760-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		5,600,000 BTU/hr
1760-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		5,600,000 BTU/hr
1985-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,559,000 BTU/hr
1985-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		1,559,000 BTU/hr
1998-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		670,000 BTU/hr
2132-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		702,000 BTU/hr
2132-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		36,000 BTU/hr
2145-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		455,000 BTU/hr
2145-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		36,000 BTU/hr
2164-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		36,000 BTU/hr
2165-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		90,000 BTU/hr
2167-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		180,000 BTU/hr
2200-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		396,600 BTU/hr
2301-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		216,000 BTU/hr
2328-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		135,000 BTU/hr
2333-ICU-01	Propane combustion unit	9 VAC 5-80-720 C		534,000 BTU/hr
2335-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2336-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2337-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2338-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		135,000 BTU/hr
2339-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2340-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2341-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2342-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2343-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2345-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		299,000 BTU/hr
2346-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		352,000 BTU/hr
2346-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		440,000 BTU/hr

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
2347-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		352,000 BTU/hr
2348-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2349-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2350-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2351-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2352-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2353-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2354-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2366-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		900,000 BTU/hr
2366-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		900,000 BTU/hr
2367-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2367-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2367-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2367-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2367-ICU-05	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2381-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,000,000 BTU/hr
2385-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,000,000 BTU/hr
2411-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2411-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		1,582,000 BTU/hr
2415-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,139,000 BTU/hr
2415-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		50,000 BTU/hr
2417-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,139,000 BTU/hr
2417-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		50,000 BTU/hr
2422-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		130,000 BTU/hr
2428-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		369,600 BTU/hr
2430-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		311,000 BTU/hr
2434-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		480,000 BTU/hr
2447-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		36,000 BTU/hr
2447-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		36,000 BTU/hr
2447-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		120,000 BTU/hr
2448-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		38,000 BTU/hr
2448-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		240,000 BTU/hr
2566-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		750,000 BTU/hr
2566-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		2,000,000 BTU/hr
2605-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		125,000 BTU/hr
2606-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		100,000 BTU/hr
2607-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		140,000 BTU/hr
2616-ICU-01	#2 Fuel oil combustion unit	9 VAC 5-80-720 C		191,000 BTU/hr
2638-ICU-01	Propane combustion unit	9 VAC 5-80-720 C		133,000 BTU/hr
2641-ICU-01	Propane combustion unit	9 VAC 5-80-720 C		192,000 BTU/hr
2642-ICU-01	Propane combustion unit	9 VAC 5-80-720 C		257,000 BTU/hr
2801-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2801-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2802-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2802-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2803-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2803-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2804-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2804-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr



Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
2805-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2805-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2806-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2806-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2807-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2807-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2808-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2808-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2809-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2809-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2810-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2810-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2811-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2811-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2812-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2812-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2813-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2813-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2814-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2814-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2815-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2815-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2816-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2816-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2817-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2817-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2818-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2818-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2819-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2819-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2820-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2820-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2821-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2821-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2822-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2822-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2823-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2823-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2824-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2824-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2825-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2825-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2826-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2826-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2827-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
2827-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2828-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		199,990 BTU/hr
2828-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		650,000 BTU/hr
3480-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		316,800 BTU/hr

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
3708-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		1,050,000 BTU/hr
3708-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		510,000 BTU/hr
3708-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		510,000 BTU/hr
3761-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		2,484,000 BTU/hr
3761-ICU-02	Natural gas combustion unit	9 VAC 5-80-720 C		2,484,000 BTU/hr
3761-ICU-03	Natural gas combustion unit	9 VAC 5-80-720 C		6,100,000 BTU/hr
3761-ICU-04	Natural gas combustion unit	9 VAC 5-80-720 C		6,100,000 BTU/hr
3761-ICU-05	Natural gas combustion unit	9 VAC 5-80-720 C		600,000 BTU/hr
3761-ICU-06	Natural gas combustion unit	9 VAC 5-80-720 C		600,000 BTU/hr
5262-ICU-01	Nat. gas & #2 fuel oil combustion unit	9 VAC 5-80-720 C		750,000 BTU/hr
5262-ICU-02	Nat. gas & #2 fuel oil combustion unit	9 VAC 5-80-720 C		600,000 BTU/hr
5271-ICU-01	Natural gas combustion unit	9 VAC 5-80-720 C		645,000 BTU/hr
5561-ICU-01	Nat. gas & #2 fuel oil combustion unit	9 VAC 5-80-720 C		1,125,000 BTU/hr
5561-ICU-02	Nat. gas & #2 fuel oil combustion unit	9 VAC 5-80-720 C		1,125,000 BTU/hr
0228-IEG-02	CI emergency electric generator (<500 hr/yr) - Portable	9 VAC 5-80-720 C		400 kW
0230-IEG-01	CI emergency electric generator (<500 hr/yr) - Portable	9 VAC 5-80-720 C		18 kW
0232-IEG-01	CI emergency electric generator (<500 hr/yr) - Portable	9 VAC 5-80-720 C		100 kW
0256-IEG-01	CI emergency electric generator (<500 hrs/yr)	9 VAC 5-80-720 C		400 kW
0580-IEG-01	CI emergency electric generator (<500 hrs/yr)	9 VAC 5-80-720 C		420 kW
1157-IEG-01	CI emergency electric generator (<500 hrs/yr)	9 VAC 5-80-720 C		400 kW
1994-IEG-01	CI emergency electric generator (<500 hr/yr)	9 VAC 5-80-720 C		400 kW
2385-IEG-01	CI emergency electric generator (<500 hr/yr)	9 VAC 5-80-720 C		470 kW
0596-PRI-02	Printing operations	9 VAC 5-80-720 B	VOC	

**Petroleum Storage Tanks**

<b>Emission Unit Number</b>	<b>Capacity in gallons</b>	<b>Tank Construction</b>	<b>Use</b>	<b>Fuel Stored</b>	<b>Citation</b>	<b>Pollutant Emitted (9 VAC 5-8—720 B)</b>
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**Free-Standing Aboveground Storage Tanks**

A0126-1	275	Steel	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0210-2	550	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0228-1	550	Steel Diked	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0228-2	1,000	Steel DW	Motor fuel	Diesel	9 VAC 5-80-720 B	VOC
A0256-1	650	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0256-2	550	ACT 100 DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0269-1	180	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0269-2	250	Steel DW	Equipment	Diesel	9 VAC 5-80-720 B	VOC
A0527-1	550	Steel Diked	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0580-2	1,000	Steel DW	Boiler/Gen	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
A0583-1	550	Steel	waste oil	waste oil	9 VAC 5-80-720 B	VOC
A0583-2	550	Steel DW	Motor fuel	Diesel	9 VAC 5-80-720 B	VOC
A0597-1	100	Steel DW	Motor fuel	Diesel	9 VAC 5-80-720 B	VOC
A1148-1	275	Steel	fire pump	Diesel	9 VAC 5-80-720 B	VOC
A1155-2	2,000	Steel DW	Generator	Diesel	9 VAC 5-80-720B	
A1157-1	550	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1626-1	1,000	Steel DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
A1628-1	550	Steel DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
A2381-1	550	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A5576-6	550	Steel DW	motor fuel	Diesel	9 VAC 5-80-720 B	VOC

**Underground Storage Tanks**

U0228-4	10,000	Steel coated with fiberglass	Motor fuel	Gasoline	9 VAC 5-80-720 B	VOC
U0231-2	2,000	ACT 100 DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U0263-2	2,000	ACT 100 DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U0331-1	550	ACT 100U Steel DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U0334-2	5,000	ACT 100 DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U0580-3	2,000	ACT 100 DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U0583-1	10,000	STIP3	Motor fuel	Gasoline	9 VAC 5-80-720 B	VOC
U0583-2	10,000	Steel coated with fiberglass	Motor fuel	Diesel	9 VAC 5-80-720 B	VOC
U0603-2	1,000	Steel	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U0631-2	1,000	ACT 100 DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U1142-2	4,000	Fiberglass	Generator	Diesel	9 VAC 5-80-720 B	VOC
U1143-2	1,500	ACT 100 DW	Generator	Diesel	9 VAC 5-80-720 B	VOC

<b>Emission Unit Number</b>	<b>Capacity in gallons</b>	<b>Tank Construction</b>	<b>Use</b>	<b>Fuel Stored</b>	<b>Citation</b>	<b>Pollutant Emitted (9 VAC 5-8—720 B)</b>
U1150-1	6,000	Fiberglass	Generator	Diesel	9 VAC 5-80-720 B	VOC
U1150-2	15,000	Fiberglass	Generator	Diesel	9 VAC 5-80-720 B	VOC
U1172-2	1,000	Fiberglass	Generator	Diesel	9 VAC 5-80-720 B	VOC
U1176-2	1,000	ACT 100 DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
U1181-2	550	Fiberglass	Generator	Diesel	9 VAC 5-80-720 B	VOC
U1196-2	1,000	Fiberglass	Generator	Diesel	9 VAC 5-80-720 B	VOC
U1600-1	6,000	Fiberglass	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U1600-2	4,000	Steel	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U2616-2	1,000	ACT 100 DW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U5561-1	4,000	Steel SW	Heating	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U5575-1	30,000	ACT 100U Steel DW	Heating	Distillate Oil	9 VAC 5-80-720 B	VOC
U5575-2	30,000	ACT 100U Steel DW	Heating	Distillate Oil	9 VAC 5-80-720 B	VOC
U5576-4	3,000	Steel StiP3	Gen-Boiler	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U7103-5	5,000	Fiberglass DW	Generator (2)	Diesel	9 VAC 5-80-720 B	VOC
U7103-9	25,000	ACT 100U Steel DW	Heating	Distillate Oil	9 VAC 5-80-720 B	VOC
U7103-10	25,000	ACT 100U Steel DW	Heating	Distillate Oil	9 VAC 5-80-720 B	VOC
U7103-11	25,000	ACT 100U Steel DW	Heating	Distillate Oil	9 VAC 5-80-720 B	VOC
U7103-12	25,000	ACT 100U Steel DW	Heating	Distillate Oil	9 VAC 5-80-720 B	VOC
U7533-5	20,000	Fiberglass DW	Boiler/Gen	#2 Fuel Oil	9 VAC 5-80-720 B	VOC
U7533-6	10,000	Fiberglass DW	Boiler/Gen	#2 Fuel Oil	9 VAC 5-80-720 B	VOC

**Above Ground Storage Tank Integral to Generators**

A0068-1	500	Steel Diked	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0083-1	65	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0094-2	240	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0125-1	75	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0131-1	380	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0201-1	290	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0207-2	380	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0210-1	200	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0210-3	52	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0210-4	300	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0214-1	275	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC

<b>Emission Unit Number</b>	<b>Capacity in gallons</b>	<b>Tank Construction</b>	<b>Use</b>	<b>Fuel Stored</b>	<b>Citation</b>	<b>Pollutant Emitted (9 VAC 5-8—720 B)</b>
A0215-1	900	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0235-2	800	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0256-3	300	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0256-4	425	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0264-1	400	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0267-1	1,500	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0401-1	110	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0446-1	396	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0528-1	100	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0534-1	100	Steel	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0550-2	500	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A0594-1	180	DW	Fire Pump	Diesel	9 VAC 5-80-720 B	VOC
A0599-1	8,350	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1142-1	940	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1142-2	5,880	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1146-1	660	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1149-1	250	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1149-2	5,000	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1149-3	5,000	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1149-4	1,260	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1149-5	1,000	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1154-1	200	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1155-1	1,100	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1161-1	4,000	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1176-1	75	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1194-1	1,000	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1600-3	112	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1600-4	147	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1760-1	6,480	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1985-1	2,500	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1994-1	750	Steel Diked	Generator	Diesel	9 VAC 5-80-720 B	VOC
A1998-1	2,000	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A2371-1	660	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A2368-1	322	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A2462-1	112	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A3656-1	119	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A3708-1	150	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A3755-1	308	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A3759-1	308	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A3761-1	1,695	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A5576-7	224	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A5271-1	250	Steel	Generator	Diesel	9 VAC 5-80-720 B	VOC

Emission Unit Number	Capacity in gallons	Tank Construction	Use	Fuel Stored	Citation	Pollutant Emitted (9 VAC 5-8—720 B)
A5307-1	250	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A5307-2	500	Steel SW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A5307-3	500	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A5502-1	189	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A7147-1	393	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
A7185-1	2,400	Steel Diked	Generator	Diesel	9 VAC 5-80-720 B	VOC

**Aboveground Day Tanks for Generators**

D0256-1	118	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1142-1	50	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1142-2	50	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1142-4	50	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1143-1	30	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1150-1	300	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1150-2	275	Steel	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1155-1	300	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1181-1	40	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1196-1	100	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D1196-2	50	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D5575-1	275	Steel DW	Generator	Distillate Oil	9 VAC 5-80-720 B	VOC
D7103-2	300	Steel DW	Generator	Diesel	9 VAC 5-80-720 B	VOC
D7533-1	25	Steel DW	Generator	Distillate Oil	9 VAC 5-80-720 B	VOC

The citation criteria for insignificant activities are as follows:

- 9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
- 9 VAC 5-80-720 B - Insignificant due to emission levels
- 9 VAC 5-80-720 C - Insignificant due to size or production rate

**CONFIDENTIAL INFORMATION**

The permittee did not submit a request for confidentiality. Therefore, all portions of the Title V application are suitable for public review.

## **PUBLIC PARTICIPATION**

A public notice regarding the draft permit was placed in the Charlottesville *Daily Progress* on July 27, 2011. EPA was sent a copy of the draft permit and notified of the public notice on July 22, 2011. West Virginia, the only affected State, was sent a copy of the public notice in a letter dated July 22, 2011. All persons on the Title V mailing list were also sent a copy of the public notice in letters dated July 22, 2011. Public comments were accepted from July 28, 2011 to August 26, 2011.

Five letters, some through electronic mail, from five individuals and two organizations, were received during the public comment period; one letter from an individual was received on August 28, 2011, after the close of the public comment period. During the public comment period the DEQ received five individual requests for a public hearing, with one request received after the close of the public comment period. No public hearing was granted due to a failure to meet the minimum criteria specified in 9 VAC 5-80-35 C, as fewer than 25 individual requests for a hearing were received.

DEQ considered all the comments received during the public comment period and based upon the review, administrative changes to the proposed Title V permit were proposed.

### **Changes to Draft Title V Permit and Draft Statement of Basis**

Condition VI.C.3 required the initial Visible Emissions Evaluation (VEE) on one of the emergency generators (Ref. 1149-2-01, 1149-3-01, and 1149-4-01). The initial VEE was conducted on June 30, 2011. The VEE report was received by the DEQ on July 11, 2011; the VEE report was reviewed by the Air Compliance Inspector and the results were determined to be incompliance with the permit condition on August 4, 2011. The condition requiring the Initial VEE has been fulfilled and has therefore been removed from the draft Title V permit and Statement of Basis.

A reference to the draft Title V permit Attachment C was added to *Condition III.B.24.k* for clarification regarding the DEQ approved emission factors and equations. The recordkeeping condition now reads: "The DEQ-approved, pollutant-specific emission factors and the equations used to demonstrate compliance with emission limits, as provided in Attachment C."

The Emission Units in Section II of the draft Title V permit and the Emission Unit and Control Device Identification Table in the draft Statement of Basis were updated to correct the model number of the emergency generator (Ref. 1148-4-01) and the building number for the emergency generator (Ref. 0593-1-01).

The Insignificant Equipment Lists in the draft Title V permit and Statement of Basis were updated to: remove the insignificant emergency generator (Ref. 1142-IEG-02) and the associated fuel storage tank (Ref. D1142-3); remove 11 insignificant fuel burning units (Ref. 0235-ICU-01, 0235-ICU-02, 3755-ICU-01, 0127-ICU-01, 0161-ICU-01, 1111-ICU-01, 1159-ICU-01, 1160-ICU-01, 2164-ICU-01, 2165-ICU-01 and 2166-ICU-01); include three additional storage tanks (Ref. D1155-1, A3755-1 and A1155-2); and revise the heat capacity and fuel for one fuel

burning unit (Ref. 2333-ICU-01).

Typographical errors were corrected on pages 14, 41, 46, 59, and 65 of the draft Title V permit, and pages 56, 62, 66, and 74 of the Statement of Basis.

Attachment F of the Statement of Basis, the Greenhouse Gas Monitoring Plan, was removed as an attachment to the Statement of Basis since there is no requirement regarding its inclusion in the final permit, at the request of the facility.

The revised draft Title V permit, Statement of Basis and “Response to Comments” document were sent to the EPA on September 29, 2011. The EPA 45-day comment period ended on November 14, 2011; no comments were received.



# ATTACHMENT A

## 2009 Emissions Inventory

## ATTACHMENT B

### Minor NSR Permits

(Minor NSR Permits are available upon request)

## ATTACHMENT C

### Emissions Calculations

## ATTACHMENT D

### Insignificant Emission Calculations

## ATTACHMENT E

### Compliance Assurance Monitoring (CAM) Plan